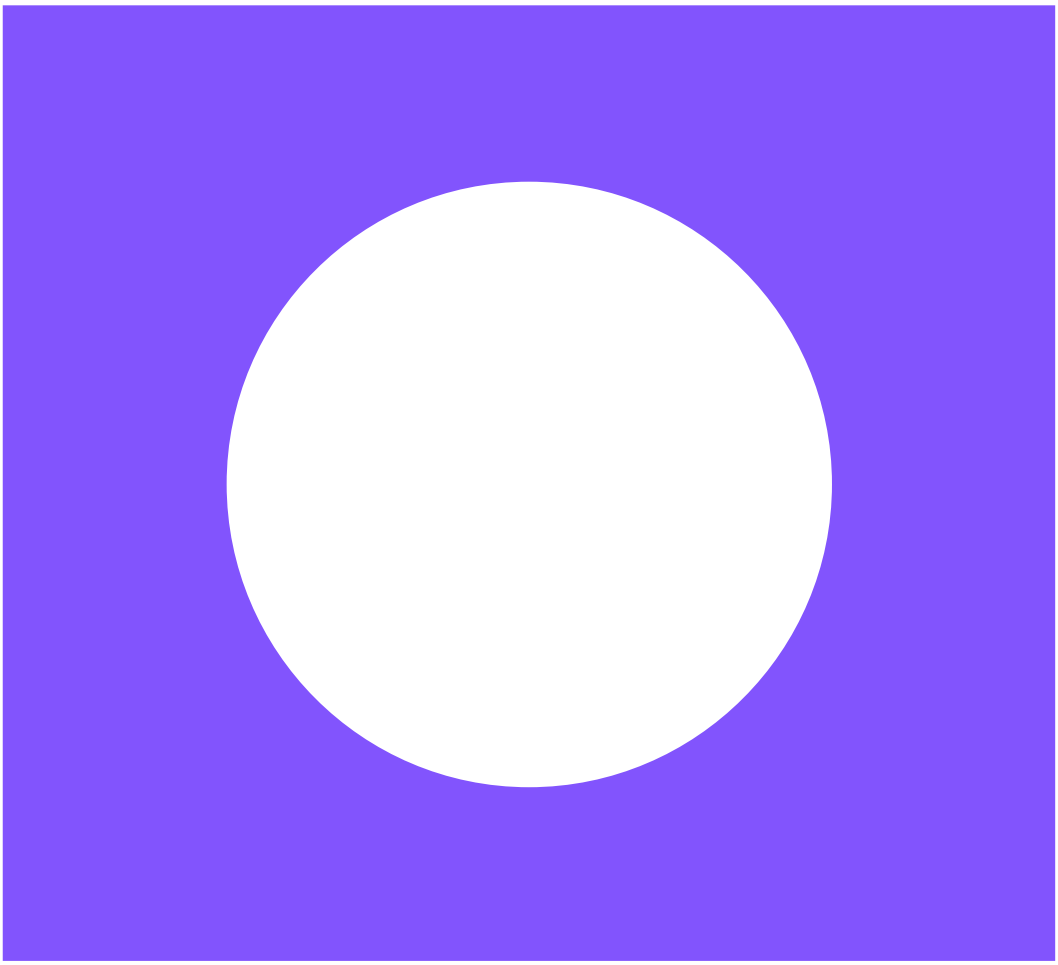
MOTT MACDONALD



Stip Wind Farm, North Macedonia

Vol VII - Biodiversity Management Plan (BMP)

February 2026

This page left intentionally blank for pagination.

Mott MacDonald
Pº de la Castellana, 77
Planta 9
28046 Madrid
Spain

T +34 910 389 528
mottmac.com

Stip Wind Farm, North Macedonia

Vol VII - Biodiversity Management Plan (BMP)

February 2026

Mott MacDonald Spain, S.L.U.
NIF B88234455

Issue and Revision Record

Revision	Date	Originator	Checker	Approver	Description
A	13/02/26	Reena. G Laura. K Esra. D Jack. P	Stephen. C	Karen. D	Draft for Client comment
B	19/02/26	Reena. G Esra. D Jack. P	Stephen. C	Karen. D	For Issuance
C	20/02/26	Reena. G Esra. D Jack. P	Stephen. C	Karen. D	For Issuance
D	24/02/26	Reena. G	Stephen. C	Karen. D	Draft for consultation

Document reference: 100119825 | D

Contents

Tables

Figures

Figures – Appendices

Tables – Appendices

Glossary

Term	Definition (for the purposes of this Biodiversity Management Plan (BMP)
Adaptive Management	A structured, iterative process of decision-making in which biodiversity management measures are adjusted based on monitoring results, new information, or observed outcomes to improve effectiveness over time.
Alcazar Energy Partners (Project Proponent)	The Project Owner and Developer with overall accountability for biodiversity performance, compliance with lender requirements, and approval of biodiversity management instruments.
Area of Influence (AoI)	The geographic area over which the Project may cause direct, indirect, or cumulative impacts on biodiversity, including construction areas, operational footprints, and associated infrastructure.
Biodiversity Action Plan (BAP)	A detailed, outcome-focused plan to be developed during construction that defines long-term biodiversity actions, objectives, and management measures, including biodiversity offsets where required.
Biodiversity Management Plan (BMP)	This document, which sets out the framework, roles, responsibilities, and implementable biodiversity mitigation measures applicable during pre-construction and construction.
Biodiversity Monitoring and Evaluation Plan (BMEP)	A plan to be developed during construction that defines monitoring objectives, methodologies, indicators, and adaptive management thresholds for biodiversity during operation, including No Net Loss (NNL) and Net Gain monitoring.
Biodiversity Offset	Measurable conservation outcomes designed to compensate for significant residual adverse biodiversity impacts after application of the mitigation hierarchy, resulting in No Net Loss or Net Gain of biodiversity.
Bird Diverter	A device installed on overhead power lines to increase visibility and reduce the risk of bird collision, selected and installed based on species risk, line configuration, and good international industry practice.
BOP Contractor	The Balance of Plant contractor responsible for implementing the Project and complying with all biodiversity requirements set out in the BMP and associated plans.
Construction Phase	The phase of the Project during which physical works are undertaken, including enabling works, internal road widening and construction, turbine foundations and platforms, crane pads, overhead transmission lines, substations, temporary construction areas, vegetation clearance, and commissioning-related activities.
Critical Habitat (EBRD definition)	Habitat with high biodiversity value as defined under EBRD Environmental and Social Requirement (ESR) 6, including habitat required for threatened or endemic species, Priority Biodiversity Features, or key ecological functions at a national or international scale.
Fauna Relocation	The capture, handling, relocation and release of tortoises, snakes and amphibians (which are Critical Habitat or Priority Biodiversity Features) within the site (away from harm), undertaken only where avoidance is not possible and under the supervision of a suitably qualified Biodiversity Specialist.
Good International Industry Practice (GIIP)	Practices, methods or techniques that are generally accepted by a broad international community of professionals as effective and appropriate for managing biodiversity risks associated with wind energy projects.
Invasive Alien Species (IAS)	Non-native species whose introduction or spread threatens biodiversity, ecosystem services or ecological integrity.
Mitigation Hierarchy	A sequential approach to managing biodiversity impacts through avoidance, minimisation, restoration or rehabilitation, and offsetting as a last resort.
Monitoring	The systematic collection of data to assess biodiversity impacts, the effectiveness of mitigation measures, and compliance with biodiversity objectives.
Operational Phase	The period during which the Project is operational and generating electricity following commissioning.

Term	Definition (for the purposes of this Biodiversity Management Plan (BMP)
Operational Bird and Bat Framework	A framework-level approach defining principles, scope, triggers and governance for managing bird and bat collision risk during operation, aligned with IFC post-construction fatality monitoring guidance.
Operational Bird and Bat Management Plan	A detailed plan to be developed during construction that sets out site-specific operational mitigation, monitoring protocols, thresholds and adaptive management measures for birds and bats during operation, building on the Operational Bird and Bat Framework.
Priority Biodiversity Features (PBF)	Biodiversity receptors of elevated conservation importance identified under EBRD ESR6, including threatened species, priority habitats or other features requiring enhanced protection or management.
Post-construction bird and bat fatality monitoring (PCFM)	A structured programme during operation to record bird and bat collision fatalities, assess species-specific risks, and inform adaptive management in line with IFC-aligned monitoring methods.
Residual Impact	A biodiversity impact that remains after all feasible avoidance, minimisation and restoration measures have been applied.
Restoration	Actions taken to return disturbed habitats to a condition similar to their pre-construction state through natural regeneration or active reinstatement using appropriate native species.
Stakeholder Engagement	A process of communication and consultation with authorities, communities, landowners and other interested parties regarding biodiversity management, including biodiversity offsets where applicable.
Stop-Work Authority	The authority to temporarily halt construction activities where there is a material risk of significant harm to biodiversity or non-compliance with this BMP.
Turbine Supplier	The company responsible for the design, manufacture, supply, and delivery of wind turbine generators (WTG), including nacelles, blades, towers, control systems, and associated equipment, in accordance with Project specifications.
Vegetation Clearance	The controlled removal of vegetation within approved wind farm construction footprints, undertaken in accordance with defined methods, timing restrictions and restoration requirements.

1 Introduction

1.1 Purpose of the Biodiversity Management Plan

The purpose of this Biodiversity Management Plan (BMP) is to provide a clear, practical plan for managing biodiversity risks and implementing mitigation measures during the pre-construction and construction phase of the wind farm, and provides strategic direction for the operational phases of the project in relation to birds and bats and offsetting measures for net gain/no net loss of Critical Habitats.
The BMP translates the biodiversity commitments and mitigation measures identified in the Environmental and Social Impact Assessment (ESIA) into implementable requirements for the Project Proponent (Alcazar Energy Partners) and Balance of Plant (BOP) Contractor (TBC).
The BOP Contractor (TBC) shall prepare a Construction Environmental Management and Monitoring Plan (CEMMP) that is fully aligned with this BMP and its Appendices, the ESIA, Quality, Health, Safety and Environment (QHSE) EMMP Framework, Alcazar Energy corporate policy and procedures, community feedback and the Balance of Plant Environmental and Social Management Systems (ESMS) .

The BMP has been prepared to support disclosure alongside the ESIA and forms part of the Project's documentation package developed to meet lender and financial requirements. The BMP demonstrates how biodiversity risks will be effectively managed during construction in line with lender standards and the mitigation hierarchy.

The BMP establishes roles, responsibilities, procedures and controls to:

- Avoid, minimise and restore biodiversity impacts in accordance with the mitigation hierarchy;
- Protect Priority Biodiversity Features (PBF) during construction activities;
- Manage vegetation clearance, restoration, invasive alien species, fauna protection and relocation, and bird and bat mitigation measures;
- Develop a No Net Loss/ Net Gain strategy where residual impacts remain after the application of avoidance, minimisation and restoration measures; and
- Provide a structured transition to the development of the Biodiversity Action Plan (BAP), Biodiversity Monitoring and Evaluation Plan (BMEP), and Operational Bird and Bat Management Plan during operation.

This BMP applies throughout construction and remains in force until it is superseded by approved operational biodiversity plans, ensuring continuous and effective biodiversity management across the Project lifecycle.

1.2 Structure of BMP

This BMP is structured to provide a clear and logical framework for the management of biodiversity risks and impacts throughout construction and a framework for risk management and monitoring during the operational phase. The BMP is organised into the following chapters:

1. **Introduction:** Provides an overview of the Project, the purpose and scope of the BMP, lender requirements and Project commitments.
2. **Governance, Roles and Capacity:** Sets out the governance framework for biodiversity management, including roles and responsibilities, lines of authority, and accountability arrangements. This chapter also addresses competency requirements, training, and awareness necessary to support effective implementation of the BMP.

3. **Biodiversity Management Plan:** Defines the biodiversity mitigation and control measures to be implemented during pre-construction, construction and immediately following construction. This chapter addresses key risks and includes requirements for vegetation clearance, habitat protection, fauna management, and bird and bat mitigation during construction activities.
4. **No Net Loss/ Net Gain Strategy:** Sets out the strategy for achieving Net Gain for Critical Habitat (Eastern white oak woods), in accordance with lender requirements. This chapter defines Net Gain objectives, potential measures to be implemented to deliver Net Gain, including enhancement, restoration and metrics to be used in measuring gain.
5. **Bird and Bat Operational Management Framework:** Sets out how operational collision risks to birds and bats will be managed**.**
6. **Monitoring, Compliance, Adaptive Management and Reporting:** This chapter outlines biodiversity monitoring requirements, compliance, adaptive management and reporting.
7. **References:** Lists the documents, standards, guidance, and information sources used in the preparation of this BMP.
8. **Appendices:** Contain detailed technical protocols and procedures supporting implementation of the BMP, including:
   - Maps (Appendix **Error! Reference source not found.**);
   - Critical Habitat and PBF (Appendix B);
   - Vegetation Clearance and Restoration Protocol (Appendix C);
   - Fauna Protection and Relocation Procedure (Appendix D);
   - Bird and Bat Construction Mitigation Measures (Appendix E).

1.3 Temporal Scope

The BMP covers pre-construction activities related to site preparation, contractor mobilisation and vegetation management to reduce the risk of encountering species addressed in the BMP.

Construction activities for Phase 1 of Stip are addressed in detail, while management of biodiversity risks during the operational phase are addressed at a strategic level for the key species groups of birds and bats.

Finally, in terms of the overall life of the project the requirements for offsetting for Critical Habitats affected during the construction phase and operational impacts are addressed strategically.

1.4 Spatial Extent of the BMP

The spatial extent of this BMP covers all areas where Project activities may result in direct or indirect biodiversity impacts within the Temporal Scope set out above. This includes the wind farm development footprint and all associated infrastructure. Specifically, the BMP applies to:

- Wind turbine locations, foundations, platforms and crane pads;
- New and upgraded internal roads, including road widening and temporary construction access;
- 7km Overhead transmission line;
- Substation;
- Temporary construction areas, laydown areas, compounds and storage areas;
- Areas subject to vegetation clearance, restoration or reinstatement;
- Any additional areas used or disturbed by construction activities.

The BMP also applies to the immediate surrounding areas where construction activities may cause indirect impacts, such as disturbance to fauna, spread of Invasive Alien Species (IAS), or temporary habitat degradation. The spatial extent aligns with the Areas of Influence (AoI) defined in the ESIA[1] and will be refined as required based on final construction layouts and as-built information.

The habitat type, Eastern white oak woods, requires measurable Net Gain, and this is expected to be achieved within the defined Urban Planning Boundary. Eastern white oak woods is classified as Eastern *Quercus pubescens* woods under EUNIS habitat classification G1.73 – Thermophilous deciduous woodland. However, given its classification under the EU Habitats Directive as a priority habitat under Annex I (EUNIS code 91AA), white oak woods is henceforth used to refer to this habitat.

This BMP does not replace future operational biodiversity plans but provides the spatial framework within which construction-phase biodiversity management measures are implemented and controlled.

1.5 Project Overview and Lifecycle Phases

The Stip Wind Farm Project is being developed by special purpose vehicles wholly owned by Alcazar Energy Partners and is in a rural, hilly and mountainous area near the city of Stip in eastern North Macedonia. The Project comprises the development, construction and operation of a utility-scale wind farm with an installed capacity of up to approximately 396 MW.

The Project consists of up to 54 wind turbine generators (WTGs), associated turbine foundations and crane pads, a 35/400 kV substation, approximately 80 km of buried medium-voltage cables, an approximately 7 km long 400 kV overhead transmission line (OHL), and around 68 km of internal and access roads. The majority of internal roads will involve upgrading or widening of existing tracks (approximately 74%), with limited construction of new road sections (approximately 26%) to access individual turbine platforms.

The wind farm will be developed in three phases (Stip 1, Stip 2 and Stip 3) within an Urban Planning Area, with construction activities partly overlapping. Construction of the first phase is expected to commence in 2026 and expected to take 24 months, with all phases anticipated to be operational by 2029. The Project operational lifespan is expected to be approximately 25–30 years.

This BMP applies specifically to the Stip 1 phase of the Project. It has been prepared to manage biodiversity risks associated with pre-construction and construction activities for Stip 1, when the greatest potential for direct biodiversity impacts occurs. The BMP also includes post-construction habitat restoration of temporarily affected areas and a No Net Loss/ Net Gain Strategy. While the ESIA has assessed the Project as a single integrated development, this BMP has been intentionally scoped to Stip 1 to reflect the phased construction approach and to allow mitigation measures to be refined based on implementation experience and collection of construction phase monitoring data.

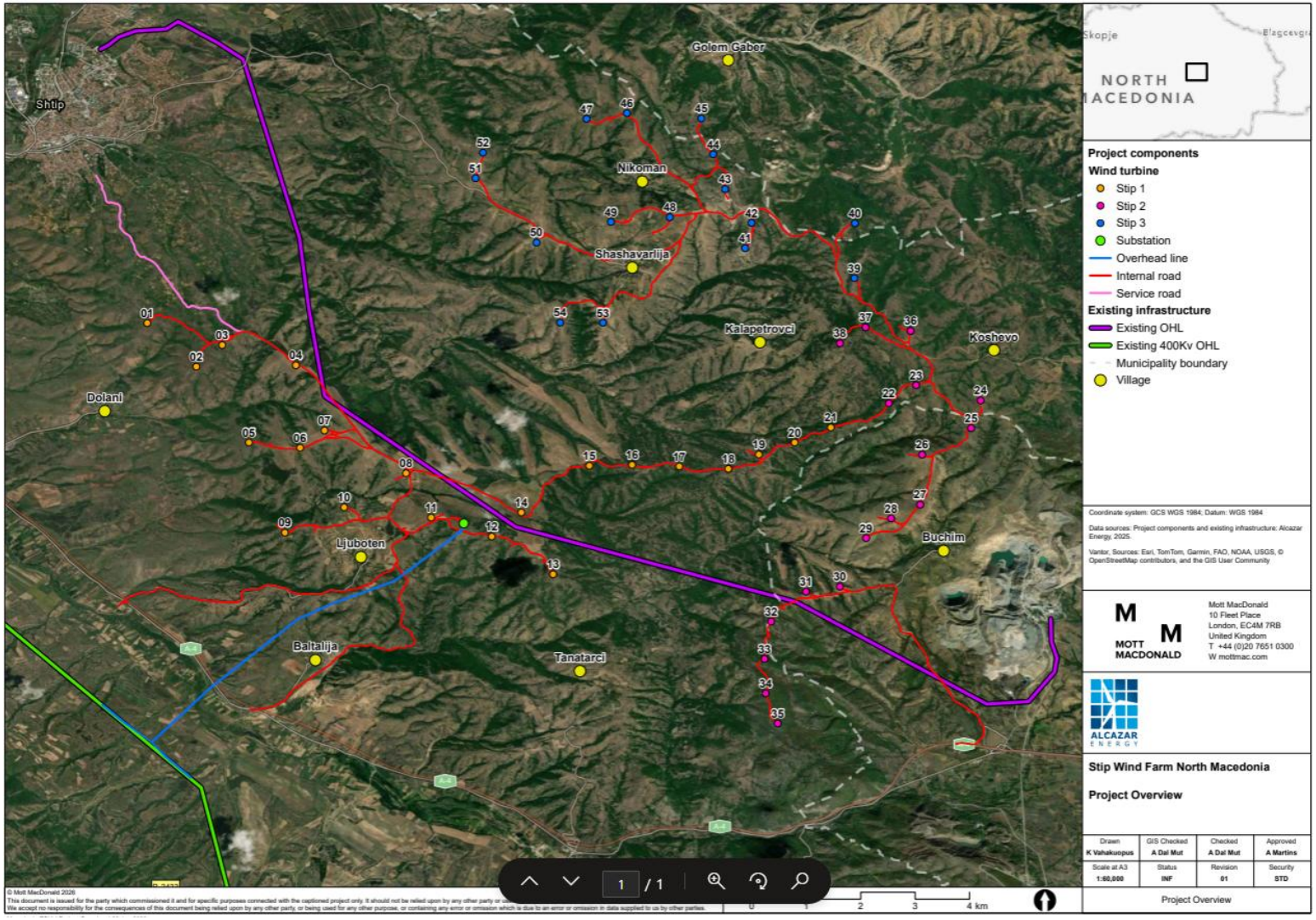
A learning-based and adaptive management approach will be applied during Stip 1 construction. Lessons learned from the implementation of biodiversity mitigation measures, including vegetation clearance, restoration, fauna protection, and bird and bat mitigation, will be used to inform and improve the design of biodiversity management measures for Stip 2 and Stip 3. The BMP will be updated for subsequent phases as required, incorporating improved mitigation measures, refined procedures, and any updated baseline or monitoring information.

[1] 500m around each Project component for habitats, flora, mammals and herpetofauna; 2km around each Project component for birds, extended to 6 km for breeding large raptors.

This phased approach ensures that biodiversity management remains proportionate, effective and responsive throughout the Project lifecycle, while maintaining full alignment with the mitigation hierarchy and lender requirements.

Figure 1.1 below presents the location of the Project, layout and phases. Appendix A presents high-resolution mapping for Stip 1, showing the locations of access roads, 21 wind turbine locations, the overhead transmission line, the substation. The maps also identify PBF and areas of Critical Habitat within the Urban Planning Boundary.

Figure 1.1: Project location, layout and phases



Source: Mott MacDonald, ESIA, 2026

1.6 Lender and Regulatory Compliance

The BMP has been prepared to meet biodiversity management expectations of:

- International Finance Corporation (IFC) Performance Standard 6 (PS6) (IFC, 2012; IFC 2019)
- European Bank for Reconstruction and Development (EBRD) Environmental and Social Requirement 6 (ESR6) (EBRD, 2024) and associated Guidance Note; (EBRD, 2025) and
- European Investment Bank (EIB) Environmental and Social Standard 4 (ESS4) (EIB, 2022)

These standards require that biodiversity risks identified through the ESIA are translated into clear management measures during implementation.

The BMP is necessary to provide lenders with assurance that biodiversity commitments are not only assessed but effectively controlled on the ground. It establishes a structured approach for managing construction and operation-related biodiversity risks, applying the mitigation hierarchy, defining responsibilities, and setting out procedures for compliance, escalation and corrective action.

By consolidating biodiversity requirements into a single, project-specific management plan, the BMP enables consistent implementation by contractors and provides a transparent basis for supervision, reporting and audit. It also creates a clear pathway for the development of subsequent biodiversity plans, ensuring continued alignment with lender standards as the Project progresses.

1.7 Biodiversity Commitments (No Net Loss / Net Gain)

The Project area supports Critical Habitat and PBF, as identified through the ESIA and Critical Habitat Assessment (CHA). In response to this, the Project has adopted biodiversity commitments that reflect the sensitivity and conservation value of the affected features. A summary of the CHA is provided in Appendix B.

1.7.1 Critical Habitat Commitment – Net Gain

The Project is located within Critical Habitat for Eastern white oak woods. The Project also identified five bat species (barbastelle bat *Barbastella barbastellus*, Schreiber's bent-winged bat *Miniopterus schreibersii*, Geoffroy's bat *Myotis emarginatus,* greater mouse-eared bat *Myotis myotis* and lesser horseshoe bat *Rhinolophus hipposideros*) and four reptiles (four-lined snake *Elaphe quatuorlineata*, Europen ratsnake *Zamenis situla*, Hermann’s tortoise *Testudo hermanni*, Greek/ spur-thighed tortoise *Testudo graeca*) as Critical Habitat features.

Where, after the implementation of the mitigation hierarch, residual impacts on Critical Habitat remain, the Project commits to achieving a Net Gain in biodiversity value. This means that, following implementation of mitigation and restoration measures, the condition, extent or viability of the biodiversity feature will be demonstrably improved relative to baseline conditions through measures such as compensation or offsetting where required.

1.7.2 Priority Biodiversity Feature Commitment – No Net Loss

The Project is also located within Priority Biodiversity Feature habitat, including:

- Helleno-Balkanic [*Satureja montana*] steppes, (6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (important orchid sites); and
- A total of 80 PBF, comprising:
  - 11 bat species - three listed under Annex II of the Habitats Directive, six migratory species and two listed under both migratory and Annex II;

- 63 bird species - 40 migratory species and six listed under Annex I of the Birds Directive and 17 listed under both criteria;
- Two amphibian species, including Yellow-bellied Toad (*Bombina variegata)* - listed under Annex II of the Habitats Directive and Common Fire Salamander (*Salamandra salamandra*) listed as International Union for Conservation of Nature (IUCN) Vulnerable;
- Four reptiles, including two tortoise species, Greek Tortoise (*Testudo graeca*) and Hermann's Tortoise (*Testudo hermanni*)and two snakes (the four-lined snake and European ratsnake) are all considered both PBFs and CH features (see Section 1.7.1).

For PBF, the Project commits to achieving No Net Loss (NNL) of biodiversity value, such that the overall condition and viability of these features is maintained.

Delivery of Commitments

These biodiversity commitments will be delivered through the measures set out in this Plan and through subsequent biodiversity plans developed during construction, including those addressing long-term management and monitoring. Progress towards the stated NNL and Net Gain outcomes will be reviewed and refined through adaptive management as implementation proceeds.

1.8 Relationship to Other Project Documentation

This BMP sits within a wider suite of biodiversity assessment and management documentation prepared for the Stip project. The ESIA, CHA and Collision Risk Assessment (CRA) provide the baseline information, impact assessment, identification of PBF and Critical Habitat, and the overarching mitigation framework in accordance with the mitigation hierarchy.

The BMP builds on these assessments and translates their findings into clear, practical biodiversity management measures for implementation, with a focus on activities associated with the BOP Contractor. At this stage, the BMP applies to Stip 1 only and sets out biodiversity management requirements for pre-construction, construction and immediate post-construction activities, ensuring that commitments identified in the ESIA can be effectively delivered on the ground.

The BMP also establishes an NNL / Net Gain strategy for PBF and Critical Habitat, and an Operational Bird and Bat Monitoring Framework. These elements define the principles and approach that will be developed in greater detail through subsequent plans.

As the project progresses, responsibility for long-term biodiversity management and monitoring will transition to dedicated documents, including a BAP for delivery of NNL and Net Gain actions, a BMEP for long-term monitoring, and a Bird and Bat Operational Management Plan for operational-phase mitigation. The current version of the BMP has been prepared to comply with Lender policies, support financial disclosure and to provide lenders with assurance that biodiversity risks identified to date can be managed effectively over the life of the project, and that the proposed NNL / Net Gain approach is ecologically, technically and economically feasible.

2 Governance, Roles and Capacity

2.1 Biodiversity Management Structure

The Biodiversity Management Structure has been designed to ensure that biodiversity commitments set out in the ESIA and this BMP are translated into consistent, auditable actions on the ground, in line with lender and regulatory expectations.

The structure comprises the following core roles:

- Alcazar Energy Partners – Project Proponent and Owner;
- Balance of Plant (BOP) Contractor – Responsible for construction delivery; and
- Ecological Clerk of Works – Contractor;
- Biodiversity Specialist – Independent expert.

2.2 Roles and Responsibilities

Table 2.1 below sets out the roles and responsibilities for the Project, including details for the Ecological Clerk of Works and Biodiversity Specialist.

Table 2.1: Roles and responsibilities for the Project.

Role	Description of Responsibilities
Alcazar Energy Partners – Project Proponent	Alcazar Energy Partners retains overall accountability for biodiversity performance and compliance throughout the Project lifecycle. Key responsibilities include: ● Ensuring that biodiversity commitments arising from the ESIA, CHA, this BMP, relevant management plans and permits are incorporated into project contracts and management systems; ● Approving the Biodiversity Management Plan and any subsequent updates; ● Ensuring that sufficient resources, authority and expertise are available to implement biodiversity measures effectively; ● Appointing the Biodiversity Specialist; ● Ensuring contractual requirements for appointment of ECoW by Contractor and approving the ECoW proposed by the Contractor; ● Providing oversight of biodiversity performance, including review of compliance reports and incidents; ● Leading engagement with lenders, regulators and other external stakeholders on biodiversity matter; ● Budget responsibility for: Ecological Clerk of Works (ECoW), BAP/BMEP preparation, Long-term habitat management. Alcazar Energy Partners remains accountable for the timely development and approval of the BAP and BMEP during construction, including biodiversity restoration requirements. Alcazar Energy Partners has authority to enforce stop-work.
BOP Contractor	The BOP Contractor is responsible for the day-to-day implementation of biodiversity mitigation and control measures during construction. Key responsibilities include: ● Appointing the ECoW; ● Implementing all biodiversity requirements set out in this BMP and associated sub-plans; ● Integrating biodiversity controls into construction planning, method statements and schedules;

Role	Description of Responsibilities
	● Ensuring that no works are undertaken outside approved footprints or in contravention of timing restrictions; ● Providing appropriately trained site personnel and ensuring biodiversity requirements are communicated through inductions and toolbox talks; ● Immediately reporting biodiversity incidents, non-compliances or unexpected finds to the Biodiversity Specialist and Alcazar Energy Partners; ● Facilitating access for biodiversity surveys, inspections and audits. The BOP Contractor does not have authority to vary biodiversity measures without approval from Alcazar Energy Partners and advice from the Biodiversity Specialist. BOP Contractor's obligations will be embedded in contracts with Alcazar Energy Partners.
Ecological Clerk of Works (ECoW) (construction phase – Site-Based, Working Under the BOP Contractor)	A suitably qualified[2] ECoW will provide independent ecological oversight on-site during construction, ensuring day-to-day compliance with biodiversity requirements. The ECoW is embedded with the BOP Contractor and focuses primarily on implementation and field supervision. Key responsibilities include: ● Pre-Construction Surveys & Checks - Undertake or supervise all pre-construction and pre-clearance biodiversity surveys and checks. Support national authority to conduct tree loss inventory for national state forest lands, Record other tree loss, habitat loss, and vegetation removal requirements; ● On-Site Ecological Supervision - Advising the BOP Contractor on the implementation of vegetation clearance, habitat restoration and invasive species management measures; - Qualified to undertake fauna protection and relocation activities, including confirmation of triggers, methods and safe handling procedures; ● Compliance Monitoring & Incident Prevention - Provide daily on-site biodiversity guidance to ensure compliance with the BMP. - Monitor works to ensure avoidance of impacts to sensitive receptors, including critical habitats and PBF. ● Authority & Corrective Action - Issuing stop-work advice where there is a material[3] risk to biodiversity; - Implement corrective actions described in the BMP or as agreed with the Biodiversity Specialist/Alcazar Energy Partners. ● Reporting - Maintain accurate biodiversity field records, including species observations, incidents, and clearance documentation. - Prepare regular site-level ecological reports for the BOP Contractor and Alcazar Energy Partners. Role Context - Reports operationally to: BOP Contractor - Receives technical oversight from: Biodiversity Specialist / Alcazar Energy Partners - Focus: Daily site implementation, inspections, checks, incident prevention.
Biodiversity Specialist (construction and operation	A suitably qualified Biodiversity Specialist will provide strategic technical oversight of biodiversity management during the construction and operational phase of the wind

[2] As a minimum the appointed person shall have substantial experience in a similar role with a background in terrestrial ecology, environmental science or similar.

[3] The materiality of risks will be looked at on a case-by-case basis in the field by suitably qualified personnel using the following definition as a guide to determination.

"Material risk to biodiversity in a development context refers to the potential impact of human activities on biodiversity that is significant enough to warrant consideration in decision-making processes."

Role	Description of Responsibilities
phase – Appointed by Alcazar Energy Partners)	farm. This role ensures that all monitoring, mitigation, and reporting requirements are fully delivered in line with the BMP, BAP, Bird and Bat Operational Management Plan and BMEP. Key responsibilities include: ● Construction-Phase Surveys, Monitoring & BOP Contractor and ECoW Oversight - Plan, manage and verify delivery of all additional biodiversity surveys and species-specific monitoring required during construction. - Provide technical oversight to the ECoW, including clarification of survey requirements, triggers and mitigation protocols. - Review ECoW outputs (field notes, incidents, monitoring results) and confirm adequacy of corrective actions. - Advise Alcazar Energy Partners on construction-phase biodiversity risks and required adaptive management measures. ● Operational Bird & Bat Protection - Provide advice to Alcazar Energy Partners on operational bird and bat mitigation measures, including operational controls and species-specific interventions. - Review collision or disturbance incidents and determine necessary mitigation or operational adjustments. ● BMEP Implementation & Oversight - Oversee implementation of the BMEP to assess whether project-level biodiversity objectives are being met. - Investigate wildlife fatalities (including roadkill) and recommend mitigation - Verify delivery of required monitoring programmes. - Evaluate monitoring data and advise on progress toward No Net Loss/ Net Gain. ● Operational Bird & Bat Monitoring - Manage operational bird and bat activity surveys and fatality monitoring in accordance with approved methodologies. ● Data Management, Analysis & Adaptive Management - Maintain biodiversity databases and ensure high-quality, consistent data management. - Analyse trends, identify emerging risks and recommend adaptive management measures. - Ensure monitoring results inform updates to the BMP, BAP and BMEP. ● Reporting, Compliance & Assurance - Prepare biodiversity performance and compliance reports for Alcazar Energy Partners. Role Context - Reports to: Alcazar Energy Partners - Provides technical oversight to: ECoW, survey teams and contractors - Focus: Strategic biodiversity management, monitoring oversight, adaptive management and compliance.

2.3 Competency, Training and Awareness

Effective implementation of this BMP requires that all personnel involved in the Project have appropriate competence, training, and awareness in line with their roles and responsibilities. Alcazar Energy Partners will ensure that biodiversity-related roles are fulfilled by suitably qualified personnel and that all relevant staff and contractors receive appropriate training.

2.3.1 Competency Requirements

Alcazar Energy Partners (Project Proponent):

Biodiversity oversight functions will be undertaken by personnel with sufficient understanding of lender requirements, regulatory obligations, and the mitigation hierarchy to ensure effective governance and decision-making. AEP will develop and roll out a biodiversity-related training plan and programme based on the requirements and recommendations set out in this BMP.

BOP Contractor:

The BOP Contractor shall ensure that personnel responsible for implementing biodiversity measures have appropriate experience and training relevant to construction and operational activities in environmentally sensitive areas.

Biodiversity Specialist (Construction and Operation Phases):

Biodiversity Specialists shall be suitably qualified and experienced professionals with demonstrated expertise in ecology and biodiversity management relevant to wind farm projects. Competence shall include experience in survey design, mitigation implementation, monitoring, reporting, and adaptive management.

Ecological Clerk of Works

An appointed individual who provides on-site ecological guidance during construction. Their role is to ensure that works comply with environmental legislation, planning conditions, and the mitigation measures set out in the ESIA and this BMP. An ECoW monitors activities, advises contractors, protects sensitive habitats and species, and helps resolve ecological issues as they arise on site.

2.3.2 Training Requirements

Training will be proportionate to the level of biodiversity risk and the responsibilities of each role, and will include, as a minimum:

Site Inductions (All Site Personnel):

- Overview of biodiversity sensitivities and key receptors;
- Summary of biodiversity commitments and legal obligations;
- No-go areas, approved working footprints, and timing restrictions;
- Procedures for reporting incidents, wildlife encounters, and unexpected finds.

Toolbox Talks (Construction Phase):

- Task-specific biodiversity risks and controls (e.g. vegetation clearance, earthworks, traffic management);
- Fauna protection measures and response procedures;
- Reinforcement of incident reporting and stop-work procedures.

Targeted Training (Role-specific):

- BOP Contractor supervisors and environmental staff: implementation of BMP requirements, method statement integration, and compliance monitoring;
- Biodiversity Specialist: project-specific mitigation measures, monitoring protocols, data management, and reporting requirements;
- ECoW: species and habitats of concern, no net loss and net gain requirements, project-specific mitigation measures, monitoring protocols and reporting requirements;

- Operations personnel: operational biodiversity controls, bird and bat fatality reporting, roadkill recording, and adaptive management procedures.

2.3.3 Awareness and Communication

Biodiversity requirements will be communicated through inductions, toolbox talks, site signage, and regular site meetings. Updates to biodiversity procedures or mitigation measures will be communicated promptly to Alcazar Energy Partners. The Biodiversity Specialist will support awareness-raising by providing on-site advice and feedback during construction and operation, as well as community awareness raising activities.

2.3.4 Records and Review

Records of training attendance, qualifications, and competency assessments will be maintained by the BOP Contractor and Alcazar Energy Partners, as applicable.

Training needs will be reviewed periodically and updated where changes in activities, risks, or monitoring results indicate a need for additional or refresher training.

This approach ensures that all personnel understand their biodiversity responsibilities and are equipped to implement the BMP effectively, in accordance with lender requirements and the mitigation hierarchy.

3 Biodiversity Management Plan

This chapter presents the BMP which sets out the measures required to manage biodiversity risks and impacts associated with pre-construction, construction and post-construction activities for the Project. The BMP translates the biodiversity commitments and mitigation measures identified in the ESIA into practical, site-specific actions to be implemented during construction. Table 3.1 links identified impacts to receptors, management actions, monitoring requirements, key performance indicators (KPIs), responsibilities, timing, and completion triggers.

The BMP applies to all construction activities within the defined spatial extent of the BMP and addresses both direct impacts (such as vegetation clearance, topsoil removal and habitat disturbance) and indirect impacts (such as disturbance to fauna, spread of invasive species, and temporary degradation of surrounding habitats).

Each management measure within the BMP is supported by comprehensive procedures as set out in the Appendices. The main BMP table provides a concise summary, while the Appendices contain the full procedural detail. The supporting Appendices include :

- Vegetation Clearance and Restoration and Invasive Species Management Plan (Appendix C);
- Fauna Protection and Relocation (Appendix D);
- Bird and Bat Protection and Mitigation (Appendix E).

These Appendices set out the implementable procedures for each measure. For example, a management action such as “Apply vegetation clearance measures which avoid and minimise degradation and disturbance” is summarised in the BMP table, while Appendix C outlines the specific survey methodology, timing, requirements and ECoW responsibilities. Similarly, a measure such as “Bird diverters will be installed and maintained” links to Appendix E, which provides installation specifications, spacing requirements and inspection protocols.

Table 3.1: Biodiversity Management Plan

#	Activity/ Impact	Receptor/s	Management Action	Mitigation type	Responsibility	Implemented by	Monitoring	KPI	Duration of Monitoring	Frequency of Monitoring	Trigger for completion
1	Site set-up	All fauna and flora	Ecological walkover; confirmation of no-go areas; toolbox talks; marking of sensitive habitats as per Appendix C, D and E Erection of exclusion fences around sensitive areas for PBF species that require vegetation removal Train staff to be aware of significance of habitats and species (once BoP onboarding has been undertaken but prior to construction activities commencing)	Avoidance	BOP and Alcazar Energy Partners	EcoW, Biodiversity Specialist	All turbine platforms, access roads, substation, OHL pylons and laydown areas – confirm habitat, refugia, water features and exclusion zones	Sensitive areas identified prior to works	Construction - Prior to construction works	Once per work area	Marked no-go areas prior to vegetation stripping
2	Vegetation stripping and ground clearance	Reptiles; amphibians; other fauna	Slow directional clearance under ECoW supervision to ensure time for small mammal/ reptiles to move out of the way if present as per Appendix C and D Cleared areas should be left at least 24 hours before excavation works to allow for small fauna to relocate Short-distance relocation, if required Minimise disturbance through best practice and timing of such works as per Appendix D	Avoidance / Minimisation	BOP Contractor	Contractor; ECoW	All turbine platforms, access road corridors, OHL pylons, forest edges and grassland areas – checks for fauna presence, refugia and fencing integrity	Zero clearance-related mortality	Construction – during vegetation stripping and ground clearance	Daily during clearance	Completion of clearance
3	Topsoil stripping and storage	Hibernating reptiles; amphibians	Slow directional clearance under ECoW supervision as per Appendix C Controlled stockpiling as per Appendix C ECoW to temporarily halt works where injury/ mortality to CH/ PBF fauna is possible	Minimisation	BOP Contractor	ECoW	All stripping areas and soil stockpiles – inspection for fauna, stockpile stability and location	No fauna buried in soil	Construction – during topsoil stripping and storage	Daily during stripping; weekly stockpile checks	Completion of topsoil storage
4	Excavation for turbine foundations	Reptiles; amphibians, cavity dwelling bats	Biodiversity Specialist to undertake pre-construction check of the burrows and nests identified during the initial walkover survey and demarcate to reduce possibility of injury/death during excavation Reduced winter speeds; hand-digging where required	Avoidance / Minimisation / Mitigation	BOP Contractor	ECoW;	All turbine foundation excavations – inspection of faces, bases and spoil for trapped fauna	Zero excavation-related mortality	Construction – during excavations	Continuous during excavation	Completion of excavation and pour
5	Cable trenching and burial	Reptiles; amphibians; soil fauna	Progressive trenching Check trenches for trapped animals prior to backfilling Backfill unused excavations within 48 hours where feasible	Minimisation	BOP Contractor	Site Manager; ECoW	All open trenches and cable routes – daily checks for trapped fauna and escape measures	No fauna trapped	Construction – during cable trenching and burial	Daily while open	Backfilling complete
6	Road widening and upgrades	Reptiles; amphibians; flora	Supervised verge clearance	Avoidance / Minimisation	BOP Contractor	BOP Contractor; ECoW	All road sections and verges – confirm footprint compliance and fencing effectiveness	No off-footprint works	Construction - Road widening and upgrades	Daily during works	Completion of road works
7	Laydown areas and spoil storage	All fauna and flora	Demarcation; avoid sensitive habitats Ensure appropriate food waste disposal is undertaken on-site	Minimisation	BOP Contractor	BOP Contractor via CEMMP	All laydown areas and spoil heaps – checks for trapped fauna, runoff and encroachment	No habitat damage	Construction – during use of laydown areas and spoil storage	Weekly	Removal of temporary areas
8	Construction traffic and site operations (including chemical spills and dust)	All fauna	Implement and enforce speed limits (⩽ 30 km/h) within site boundaries; signage; driver awareness	Minimisation	BOP Contractor	Contractor via CEMP	All internal site roads – monitoring vehicle speeds and fauna incidents	No roadkill No chemical spill incidents/ no animals	Construction	Weekly and after incidents	Completion of construction

#	Activity/ Impact	Receptor/s	Management Action	Mitigation type	Responsibility	Implemented by	Monitoring	KPI	Duration of Monitoring	Frequency of Monitoring	Trigger for completion
			No off-road driving, parking and storage in designated areas only Ensure staff are trained to respond to spill events Utilise up-to-date equipment and machinery with use of manufacturer's guidelines for cleaning and maintenance				Driving behaviour monitoring systems	harmed from chemical spills			
9	Open excavations and trenches (throughout works)	All fauna	Regular checks of open excavations to ensure trapped animals can escape. Inspect open trenches daily; install escape ramps every 25–50 m; cover trenches overnight where feasible;	Minimisation	BOP Contractor	BOP Site Manager; ECoW	All open pits, trenches and excavations – morning and evening checks for trapped fauna	100% escape measures in place	Construction – during open excavations and trenches	Daily	Closure of excavations
10	Reinstatement and site restoration	All fauna and flora	Progressive reinstatement; native species (Appendix C.2)	Restoration	BOP Contractor	Contractor; ECoW	All reinstated platforms, roads and laydown areas – confirmation of soil and habitat recovery	Reinstatement meets objectives	Immediately post-construction of a section	At completion	Biodiversity Specialist sign-off
11	Introduction and spread of Invasive Alien Species (IAS) through construction activities	All habitats and flora, with focus on Eastern white oak woods (CH) and Helleno-Balkanic *Satureja montana* steppe (PBF)	Avoid introduction of IAS through pre-construction and construction prevention measures detailed in the Invasive Species Management Plan (Appendix C)	Avoid	BOP Contractor and AEP	BOP Contractor with ECoW	ECoW site inspections for IAS Records of personnel training and equipment hygiene	Zero established IAS populations within Project footprint	Construction	Throughout construction phase	All physical disturbance works completed
12	Introduction and spread of IAS through construction activities	Restored habitats and offset areas (if relevant), particularly Eastern white oak woods (CH) and Helleno-Balkanic *Satureja montana* steppe (PBF)	Avoid introduction of IAS during restoration through measures detailed in the section on habitat restoration and reinstatement in the Invasive Species Management Plan (Appendix C)	Avoid	BOP Contractor and AEP	BOP Contractor	Ecological monitoring surveys by Biodiversity Specialist as per BMEP/BAP	Zero established IAS populations within Project footprint and restoration sites	Construction	Post-construction restoration; monitoring during establishment period as per BAP	Restoration works completed in accordance with BAP
13	Physical loss and degradation of vegetation and habitat	All habitats and flora, with focus on Eastern white oak woods (CH) and Helleno-Balkanic Satureja montana steppe (PBF)	Minimise construction and operational footprints and avoid important habitats where possible. See Minimisation of Construction and Operational Footprint section of Vegetation Clearance Plan (Appendix C)	Avoid / Minimise	BOP Contractor and AEP	BOP Contractor with ECoW	Visual site inspection	All work areas are demarcated and established in appropriate areas No clearing of important habitats (i.e. woodland and steppe grassland) outside authorised construction footprint	Construction	Pre-construction checks daily Construction checks daily	Construction works completed in accordance with BMP
14	Physical loss and degradation of vegetation and habitat	All habitats and flora, with focus on Eastern white oak woods (CH) and Helleno-Balkanic Satureja montana steppe (PBF)	ECoW to record condition and extent of habitat lost ECoW to support national authorities to undertake tree inventory of trees lost within State Forest land. Undertake inventory of additional tree loss outside of State Forest land Apply vegetation clearance measures which avoid and minimise degradation and disturbance. See Vegetation Clearance Methods and Controls section of Vegetation Clearance Plan (Appendix C)	Avoid / Minimise	BOP Contractor and AEP	BOP Contractor with ECoW	Visual site inspection Photographs and recording of stockpile locations Incident reporting	Temporary construction infrastructure removed upon completion of works. Correct stockpiling and management of vegetation. Soil Management Plan and Fire Management Plan in	Construction	Pre-construction checks daily Construction checks daily	Construction works completed in accordance with BMP

#	Activity/ Impact	Receptor/s	Management Action	Mitigation type	Responsibility	Implemented by	Monitoring	KPI	Duration of Monitoring	Frequency of Monitoring	Trigger for completion
								place and complied with			
15	Physical loss and degradation of vegetation and habitat	All habitats and flora, with focus on Eastern white oak woods (CH) and Helleno-Balkanic Satureja montana steppe (PBF)	Restoration of temporarily disturbed habitats, in accordance with Habitat Restoration Plan (Appendix C) and further details of Woodland Management Plan to be included in BAP	Restore	Alcazar Energy Partners	BOP Contractor, Biodiversity Specialist	Details to be defined in BAP	Details to be defined in BAP	Details to be defined in BAP	During construction (plan preparation) Post-construction (implementation of restoration plan)	Restoration of all temporarily disturbed habitats
16	Physical loss and degradation of vegetation and habitat	All habitats and flora, with focus on Eastern white oak woods (CH) and Helleno-Balkanic Satureja montana steppe (PBF)	Habitat restoration/compensation for permanently lost habitats, in accordance with Habitat Restoration Plan (Appendix C) and further to be included in BAP	Restore / Compensate	Alcazar Energy Partners / BOP Contractor	ECoW/Biodiversity Specialist	Details to be defined in BAP	Details to be defined in BAP	Details to be defined in BAP	Post-construction (details to be defined in BAP)	Details to be defined in BAP
17	Physical loss and degradation of vegetation and habitat	All trees	Support national authorities to undertake tree inventory from State Forest land, in line with permitting requirements and to inform NNL/Net Gain (NG) calculations for restoration and compensation Record other tree loss etc outdie of State Forest areas	Restore / Compensate	Alcazar Energy Partners / BOP Contractor	ECoW	Confirmation of tree inventory completed by relevant authority	Inventory approved	Through construction – removal of trees	Ongoing inventory as works progress; update during construction if required	All tree clearance completed and inventoried
18	Physical loss and degradation of vegetation and habitat	Woodland habitats under transmission line corridor	Managed as permanently height-restricted habitats by maintaining a diverse low-canopy woodland and scrub mosaic that maximises biodiversity value within the operational safety constraints. See Transmission Line Woodland Management in Appendix C	Minimise / Restore	Alcazar Energy Partners	BOP Contractor ECoW/ Biodiversity Specialist	Details to be defined in BAP	Details to be defined in BAP	Details to be defined in BAP	During construction (plan preparation and implementation) Operation (ongoing management)	Ongoing management throughout construction to maintain maximum vegetation heights
19	Direct harm through construction activities and use of equipment and vehicles Noise and vibration disturbance, light disturbance	Bats, PBF bat species	Pre-clearance and pre-construction surveys, mark areas off if needed Expanding foam application to empty suitable roost cavities prior to clearance Minimise noise and vibration disturbance through best practice and timing, reduce night work and lighting Site employees should be trained to be aware of significance of habitats and species Reduce insect attraction to areas (waste management, light management, rapid backfilling to prevent puddle formation) Refer to Appendix E	Minimisation	BOP Contractor	BOP Contractor with ECoW / Biodiversity Specialist supervision	Checking all suitable roosting structures exclusion fences in place and intact throughout works. Maintain a log sheet for fauna injury/mortality incidents and implement adaptive management as required.	Zero incidents of animal fatalities/ these being injured	Construction	Start prior to ground clearance activities, continue through all ground clearance works, road expansions and pylon and platform construction.	All physical disturbance works completed
20	Structural damage, collapse to possible maternity or hibernation cave or crevices Loss of hibernating bat colony or flightless pups	Cavity dwelling bats, PBF bat species	Supervised excavation, pile driving and blasting (at this stage not envisaged); reduced winter speeds; hand-digging where required Personnel trained on what to do if previously unknown caves are found during construction Populated caves marked off until bats can safely evacuate Nearby excavation, pile driving, and other high noise and vibration impact activities are halted until cave is safely cleared of bat colony within a radius of 100m	Avoidance / Minimisation	Alcazar Energy Partners / BOP Contractor	BOP Contractor with ECoW / Biodiversity Specialist supervision BOP Contractor with Speleologist (or if unavailable a similar, suitably qualified professional), if cave access is need is identified by ECoW / Bat specialist	Checking caves for bat populations exclusion fences in place and intact throughout works. Verifying caves are clear before construction.	Zero noise and vibration-related colony loss	Construction	Continuous during excavation, and pile driving activities	Completion of excavation, pile driving activities

#	Activity/ Impact	Receptor/s	Management Action	Mitigation type	Responsibility	Implemented by	Monitoring	KPI	Duration of Monitoring	Frequency of Monitoring	Trigger for completion
21	Direct harm to nests due to construction activities and clearance Nest, egg, hatchling loss Disturbance and parental abandonment of nest	Birds, PBF bird species	Ecological clerk of works present during vegetation removal works Check ground, trees, crevices, boulders, artificial structures (abandoned buildings, old walls), holes on cliff faces or sandy banks for bird nests Bird specialist to undertake pre-construction check of the nests identified during an initial walkover survey and move these to reduce possibility of injury/death during excavation Vegetation clearance to be undertaken gradually, slowly and directionally. Avoid loss of habitat outside of the construction boundaries Use only existing and purposely built roads/tracks for construction vehicles Enclose secure fencing sites to ensure that disturbance to off-site areas is reduced Refer to Appendix E	Minimisation	Alcazar Energy Partners / BOP Contractor	BOP Contractor with ECoW / Bird Specialist supervision	Continue to check that animals have not entered exclusion zones	Zero incidents of avoidable harm to nests, eggs or hatchlings	Construction – During vegetation clearance	On commencement of ground clearance and as required based on construction activities and habitats	All physical disturbance works completed
22	Direct harm to nests due to construction activities and clearance Nest, egg, hatchling loss Disturbance and parental abandonment of nest	Eastern Imperial Eagle (EIE)	Ecological clerk of works present during vegetation removal works, clear suitable trees prior to breeding season Check suitable trees and artificial structures for nests prior to leaf out in spring Deter nesting activity in February-early spring if nest building is observed Mark off any occupied nest, construction to stop within buffer until fledging Bird specialist to assess nest translocation possibility Refer to Appendix E	Minimisation	Alcazar Energy Partners	BOP Contractor with ECoW / Bird Specialist supervision	Monitor nest success, verify fledging Monitor translocation success	Zero incidents of EIE nest loss No juvenile mortality due to construction	Construction	Locate nests in February once Check weekly in case of protected nest	All physical disturbance works completed
23	Light disturbance	Birds, bat, all fauna	Lighting for construction and security purposes will be inward and downward facing to minimise light pollution in remote areas, and to minimise the disturbance to nocturnal wildlife, birds and invertebrates, to reduce insect attraction Artificial light will be limited to areas where it is essential. Fewer lights will be preferable to more lights and lighting design will be prevented from affecting the sky as much as possible. Warm LED lights will be preferred than HPS to lighting Automatic lights will be preferred where possible	Minimisation	BOP Contractor	BOP Contractor, Site Manager	Check light pollution from a distance	No lights from construction site visible from 500 metres away	Construction	Whenever new permanent / temporary lighting sources are installed	Complete demobilisation / hand-over to operation management
24	Bird collision with OHL	Birds	Bird diverters will be installed and maintained according to E.4.	Minimisation	Alcazar Energy Partners	BOP Contractor with ECoW / supervised by Biodiversity Specialist	BOP Contractor: Check diverters are securely attached, mobile, reflective in low light. Check diverters for any partial failures or complete loss	No partial failure or loss of diverters, all diverters functional as specified	Construction, after installation of diverters	Diverter failure: Quarterly, and immediately inspect after sustained high wind conditions (>60 km/h)	Complete demobilisation / hand-over to operation management

#	Activity/ Impact	Receptor/s	Management Action	Mitigation type	Responsibility	Implemented by	Monitoring	KPI	Duration of Monitoring	Frequency of Monitoring	Trigger for completion
							Biodiversity Specialist: Routine carcass search under OHL after operational and according to PCFM protocol	No bird fatality attributed to OHL collision		Routine carcass search by Biodiversity Specialist under OHL after according to PCFM protocol (likely to be weekly)	

4 No Net Loss/ Net Gain Strategy

4.1 Purpose and Approach

This chapter sets out the strategy by which the Project will meet NNL requirements for PBF and achieve Net Gain for Critical Habitat.

Permanent land take associated with project infrastructure results in unavoidable losses of Eastern white oak woods, corresponding to Annex I 'priority' habitat type 91AA (EEA, 2019) Eastern white oak woods and Helleno-Balkanic [*Satureja montana*] steppes, corresponding to Annex I habitat type 6210 – Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*). Eastern white oak woodland has been identified as Critical Habitat and semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) are considered a PBF.

To meet the Project's biodiversity outcome commitments, the project is applying the mitigation hierarchy to all biodiversity features. The Project area supports a total of 807 PBF, including bats, birds, amphibians, reptiles and tortoises. Following implementation of avoidance, minimisation and restoration measures as set out in Chapter 3 and Appendices A to C, residual impacts may remain for certain CH and PBF species associated with grassland/woodland habitats. These residual impacts will be addressed through the Project's NNL/NG strategy, which will be further developed in the Biodiversity Action Plan (BAP), including monitoring and adaptive management to verify outcomes.

Specific measures are, however, required to achieve net gain for Eastern white oak woods and achieve NNL of Helleno-Balkanic [*Satureja montana*] steppes in the extent, condition or ecological functionality of these habitats.

Birds and bats are addressed separately, reflecting their mobility, sensitivity to operational impacts, and monitoring requirements, and are managed through the Bird and Bat Operational Management Framework and subsequently a Bird and Bat Operational Management Plan.

On this basis, the Project will focus on restoration and long-term management of Eastern white oak woods and Helleno-Balkanic [*Satureja montana*] steppes that remain within the Urban Planning Boundary. Where restoration objectives are not successfully met, severely constrained or lagging in terms of delivery, mechanisms should be developed in the BAP and BMEP to address this. Where required, some of the temporary affected areas may need to be added to the quantum of permanent loss for compensation.

Table 4.1 present the habitats within the Urban Planning Boundary for Stip 1, Stip 2, Stip 3 and a total for the Project for availability to retain or enhance for the Project to achieve NNL/ Net Gain. For this purpose, the Stip 1 calculation for Eastern white oak woods excluded the habitat under the transmission line as this habitat will be altered and managed under 8m deeming it unsuitable for enhancement of woodland.

Table 4.2 presents an estimation of the total permanent habitat loss for Priority Biodiversity Feature and Critical Habitat.

Following procedures outlined in Appendix C, additional data will be collected during the construction phase to update the total actual habitat loss and therefore recalculate the quantitative requirements to achieve NNL and Net Gain.

The Table includes the amount of habitat available within the Urban Planning Boundary and remaining habitat after the estimated loss. When a habitat impacted by development will return

to its original baseline habitat type and condition within two years of the habitat loss, it is considered temporary loss (or habitat retention) (Ramboll, 2026a).

Given woodland habitat will take longer to recover, habitats removed for temporary infrastructure are included in the calculations as habitats lost and require enhancement or creation to achieve Net Gain. The transmission line is not included within the habitat loss calculations in Table 4.1 because the habitats within the 30m safety corridor will be managed at 8m. There will be minimal habitat loss for the pylons which will need to be recorded during construction phase. Any tree removal along the transmission line corridor will be recorded as part of the construction phase and the calculations of loss will be updated to inform the metric described in Section 4.3.

Table 4.1: Habitats within the Urban Planning Boundary

			Stip 1	Stip 1- Proportion (%)	Stip 2	Stip 2 - Proportion (%)	Stip 3	Stip 3- Proportion (%)	All Phases	All Phases - Proportion (%)
Habitat type		**CH/ PBF - requirement**	**Area (ha)**							
Eastern white oak woods	**Natural**	**CH - NG**	**21.10 (excluding OHL)**	**13.86**	**20.80**	**24.23**	**24.06**	**23.78**	**66.0**	**22.35**
Helleno-Balkanic [Satureja montana] steppes	**Natural**	**PBF - NNL**	**19.62**	**12.89**	**27.68**	**32.25**	**18.12**	**17.92**	**65.4**	**18.53**
Abandoned arable land with ruderal vegetation	Modified	N/A	7.58	4.98	8.66	10.08	30.87	30.52	47.1	13.34
Native conifer plantations	Modified	N/A	21.47	14.11	0.00	0.00	0.16	0.16	21.6	6.13
Lines of trees; Hedgerows	Natural	Natural - NNL	1.47	0.36	1.93	2.25	0.00	0.00	3.4	0.96
Arable land	Modified	N/A	70.33	46.21	20.27	23.61	19.49	19.27	110.1	31.18
Rural industrial and commercial sites still in active use	Modified	N/A	0.66	0.43	0.00	0.00	0.38	0.38	1.0	0.30
Temporary running water[4]	Natural	Natural - NNL	0.04	0.03	0.01	0.01	0.00	0.00	0.1	0.01
Road network	Modified	N/A	10.86	7.14	6.48	7.55	8.08	7.98	25.4	7.20
Totals			**153.13**	**100**	**85.83**	**100**	**101.16**	**100**	**340.13**	**100**

[4] Temporary running waters will not be lost or impacted by the Project.

Table 4.2: Estimated losses (Stip1, Stip 2, Stip 3)

Habitat		Estimated loss (Stip 1)(ha)	Estimated loss (Stip 2)(ha)	Estimated loss (Stip 3)(ha)	Total to be used in the EBM
G1.73 - Eastern *Quercus pubescens* woods 91AA Eastern white oak woods	Permanent project footprint	2.58	2.38	2.78	
	Temporary project footprint	6.63	4.01	2.94	
	Total project footprint	9.21	6.39	5.72	**21.32**
E1.21 - Helleno-Balkanic [Satureja montana] steppes 6210 – Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*)	Permanent project footprint	2.23	3.44	2.24	**7.91**
	Temporary project footprint	3.65	5.07	3.77	
	Total footprint	5.88	8.51	6.01	

4.2 Biodiversity Action Plan Outline

This section provides a high-level outline of the future Biodiversity Action Plan (BAP), which will be developed into a full BAP during the next phase of work. To support delivery of NNL and Net Gain objectives, a BAP will be prepared and implemented over the Project lifecycle. Where feasible and subject to landowner agreement and approval, habitat management, enhancement and creation will be undertaken within the Urban Planning Boundary rather than through off-site biodiversity offsetting to achieve the NNL/ NG objectives. Considering the degraded condition of woodland habitats within and around the Project area, improving the condition of existing woodland is expected to deliver more effective and greater likelihood of success of biodiversity outcomes due to the risk and uncertainty associated with woodland creation (Forest Research, 2025; see Section 4.3 for impact assessment context). Targets for grassland habitats will similarly be defined in the BAP, including measures to maintain or enhance grassland condition and support CH/PBF species associated with these habitats.

The BAP will also consider community needs, constraints and opportunities, including potential linkages with the Livelihood Restoration Plan (LRP), and options for involving local stakeholders in practical conservation actions where appropriate.

4.2.1 Helleno-Balkanic [*Satureja montana*] Steppes

The BAP will include targeted management measures to secure NNL and, where baseline condition allows, Net Gain for retained and affected areas of Helleno-Balkanic [*Satureja montana*] steppes habitat. NNL/NG targets for this habitat will be defined in the BAP, based on the condition and area of habitat unavoidably lost to the Project. Section C.2 in Appendix C includes specific recommendations based on the EU action plan for this habitat type. Measures may include:

- Appropriate grazing management, including:
  - Adjustment of stocking density, timing, and duration to avoid over- or under-grazing;
  - Use of extensive, low-intensity grazing regimes compatible with steppe conservation objectives; and
  - Temporary grazing exclusion where required to allow vegetation recovery.
- Scrub and encroachment control, through selective removal of woody or invasive species that threaten open steppe structure, while retaining scattered shrubs where they contribute to habitat heterogeneity.
- Protection of calcareous soils, including:
  - Avoidance of compaction, erosion, and nutrient enrichment;
  - Control of runoff, dust deposition, and accidental fertilisation during construction; and
  - Maintenance of natural soil profiles and microtopography.
- Enhancement of floristic diversity, including:
  - Promotion of characteristic *Festuco-Brometalia* species assemblages;
  - Natural regeneration of *Satureja montana* and associated steppe species; and
  - Where necessary, carefully controlled introduction of locally appropriate seed material, subject to regulatory approval.
- Control of invasive and non-characteristic species, through early detection and removal.
- Protection of sensitive areas, including:
  - Designation of no-go zones defined by ECoW/ Biodiversity Specialist;
  - Temporary or permanent fencing where required; and
  - Signage and access controls to prevent trampling and vehicle damage.

These measures go beyond basic impact restoration and are intended to secure at least NNL in habitat condition, with potential for Net Gain where degraded areas are enhanced. The BAP will also consider community needs, constraints and opportunities, including potential linkages with the LRP and opportunities for local involvement in practical conservation activities (e.g., fencing, IAS control, or sustainable grazing awareness), where appropriate.

4.2.2 Eastern White Oak Woods

Net Gain for Eastern white oak woods will be achieved through enhancement and active management of retained woodland rather than through off-site compensation, where feasible. Achievement of NG will depend on the baseline condition and the extent to which woodland condition can be measurably improved, with targets to be defined in the BAP and informed by the assessment in Section 4.3. The BAP will include targeted woodland management measures designed to improve habitat condition, structure, and resilience, including:

- Assisted natural regeneration, such as:
  - Reducing grazing pressure within woodland and regeneration zones;
  - Establishing temporary no-go areas; and
  - Protecting young trees and saplings from browsing and trampling.
- Enrichment planting, using locally appropriate native species to reinforce the characteristic species composition and genetic integrity of Eastern white oak woods.
- Control of invasive or competing species, where these threaten woodland regeneration or alter natural species composition.
- Improvement of woodland structure and age diversity, including:
  - Promotion of mixed age classes;
  - Retention of standing and fallen deadwood where safe to do so; and
  - Creation of small-scale structural heterogeneity to enhance ecological resilience.
- Protection of regeneration areas, through fencing, access restrictions, and signage to minimise disturbance during critical establishment phases.

These measures are intended to deliver a net positive outcome for the extent, quality, and long-term viability of Eastern white oak woods within the Project site. The BAP will also consider community needs, constraints and opportunities, including potential linkages with the LRP and opportunities for local involvement in appropriate conservation activities (e.g., fencing, IAS control, or sustainable grazing awareness).

4.2.3 Reptiles

Net gain for reptiles species will be achieved through habitat creation and enhancement. Priority will be given to achieving this through active management of suitable habitats on site where feasible, rather than off-site compensation. The BAP will include habitat management measures including:

- Restoring, enhancing or creating habitats to meet species-specific suitability criteria, including:
  - Rocky habitat structures (stone piles, dry-stone walls, etc.);
  - Patchy cover of shrubs and grassland; and
  - Forest-margin mosaics and sparsely vegetated slopes.
- Where appropriate, create artificial hibernacula and refuge areas using rubble, logs, stones, etc.;
- Avoid disturbing known burrows or stone structures potentially used by these species.

- Where relevant design and implement habitat corridors linking rocky areas, shrubs, hedgerows and forest edges; and
- Maintain prey habitat to increase survival rates, including small mammal, birds, lizards and tortoises.

These measures are intended to improve the habitat and conditions for the CH snake species, leading to a net gain and their long-term success.

4.2.4 Bats

Net Gain for bat species can be achieved through targeting habitat needs of woodland and cave-dwelling species. Habitat creation and enhancement opportunities are broadly available on site and will be preferred over off-site compensation. However, care shall be taken in ensuring tht bats are not attracted to turbine areas for feeding or transit between habitats and roost sites. The BAP will also consider the need for a more comprehensive survey of potential roosting areas (e.g., abandoned buildings, mining voids, forested ravines) over a wider radius than the baseline survey, where appropriate.

Creation of successful artificial structures is more challenging for cave-dwellers therefore enhancement of existing structures will be targeted primarily. Measures to be elaborated as part of BAP will include:

- Enhancing existing woodland habitats and caves, creating new woodland habitat to meet aims for species
- Creation of artificial structures such as bat boxes (note, artificial caves which will properly attract bats are challenging to design and implement from scratch, and are not considered a primary means to achieve NG, but can be a last resort)
- Maintenance of abandoned artificial structures like mines,
- Wetland or pond creation to increase prey species abundance
- Enhancing commute routes through hedgerow plantation and creation of dark corridors between key areas

4.2.5 Monitoring and Adaptive Management

The BAP will include a BMEP for both habitats, covering:

- Habitat extent and condition;
- Vegetation structure and species composition;
- Presence and performance of characteristic and indicator species; and
- Evidence of pressures such as grazing, disturbance, or invasive species.

The BAP will also consider monitoring of CH species identified in Appendix B to ensure net gain targets are met, mitigation measures are successful and to inform adaptive measures for all CH and PBF species as needed.

4.2.6 Wider Biodiversity Benefits

Implementation of the BAP is expected to deliver wider biodiversity benefits, including:

- Enhanced foraging and dispersal habitat for invertebrates, including pollinators associated with dry grasslands and woodland edges;
- Improved habitat for reptiles and amphibians, such as lizards, snakes, tortoises, toads, and salamanders, through improved ground cover, microhabitat availability, and reduced disturbance;
- Improved foraging, nesting, and movement corridors for birds; and

- Increased roosting, foraging, and commuting opportunities for bats, particularly through improved woodland structure and edge habitats. This is also anticipated to improve habitat quality for the tortoise species using both open areas and woodland for shade.

Implementation of the BAP may also generate wider ecosystem-services benefits (e.g., soil stability, pollination support, and improved microclimate regulation) and could deliver community-related benefits where local involvement in conservation initiatives is pursued.

4.3 Habitat-Based Metrics

The role of biodiversity metrics is to validate, track and demonstrate the achievement of the commitments outlined in Section 1.7 of this BMP. The European Biodiversity Metric 1.0 (EBM) developed by Ramboll (Ramboll, 2026b) will be applied as the quantitative framework for measuring biodiversity outcomes associated with the project. The EBM provides a standardised, transparent method for calculating biodiversity units based on habitat extent, condition, conservation priority and strategic significance. By combining these factors, the metric enables a consistent comparison between baseline habitats and post-construction or post-restoration conditions. Its application will enable consistent comparison of baseline and post-intervention biodiversity values and supports auditable reporting of NNL and Net Gain outcomes.

The EBM will be implemented and maintained as an integral component of the project's BAP and BMEP. Baseline biodiversity unit values have been estimated using pre-construction habitat mapping and field survey data. These baseline values will be used as the reference point against which biodiversity losses and gains are measured. Metric calculations will be reviewed as part of the BAP and updated following vegetation clearance, tree inventory and restoration of temporarily impacted habitats.

For Helleno-Balkanic [*Satureja montana*] steppes, requiring NNL, the metric will reflect construction phase monitoring results and post-construction habitat restoration.

For Eastern white oak woods, requiring Net Gain, the EBM will be used to quantify gains achieved though habitat enhancement and long-term management measures implemented under the BAP, including improvements in habitat condition, structural diversity and ecological function. Temporal and difficulty risk multipliers will be applied in line with EBM guidance to reflect woodland recovery timescales and uncertainty, ensuring that Net Gain is achievable.

When applying Stip 1 habitat losses to the metric and restricting enhancements to the Stip 1 footprint, the model does not generate sufficient biodiversity units to meet the required outcomes. This is expected because Stip 1 contains limited suitable woodland habitat for enhancement and restoration.

A whole-project analysis (Stip 1–3 boundary) shows that sufficient areas of grassland and Eastern white oak woods are available for enhancement, restoration, and long-term management. When the total suitable habitat area across all phases is modelled, the project achieves NNL for semi-natural calcareous grassland and a positive Net Gain for Eastern white oak woods.

A preliminary calculation of habitat metric outcomes for the Project is provided in Table 4.3 below. These early results demonstrate the indicative biodiversity unit changes associated with habitat losses, on-site retention-site retention and on-site habitat enhancement. The total percentage change in biodiversity across the project area has been calculated by combining all on-site CH and PBF habitats retained or enhanced (including grassland areas to be restored in temporary construction areas).

In Table 4.3, the baseline columns present the on-site existing areas (ha) i.e. the measured area of each habitat type within the Urban Planning Boundary before construction, based on

baseline mapping and field surveys and on-site existing value (units) i.e. the biodiversity units calculated via the EBM for each habitat in its current (pre-construction) condition.

This is calculated using the standard EBM formula:

Biodiversity Units = Area (ha) × Condition Score × Conservation Priority Score × Strategic Significance Factor

The post-development on-site columns estimate the future habitat extent and quality after construction and after completing all restoration and habitat enhancement proposed as part of the BAP[5]. The on-site proposed area is the predicted extent of each habitat after accounting for permanent habitat loss, temporary loss and reinstatement. The on-site proposed value (units) are the biodiversity units associated with the predicted future condition and management outcomes and this value incorporates:

- Expected condition uplift (e.g. woodland enhancement, improved structure, better species composition),
- Temporal and difficulty multipliers.

The positive figure for on-site unit change shows a potential Net Gain and total project biodiversity % change.

Biodiversity metric outputs for the Stip Wind Farm Project are considered adaptive and iterative. As monitoring data become available during construction and early operation, EBM inputs and results will be updated to reflect actual site conditions and management outcomes. Where monitoring indicates that predicted outcomes are not being achieved, the BAP will provide the mechanism for adaptive management, with subsequent updates to the metric demonstrating corrective actions.

4.3.1 Habitat Classification

The EBM is based on EUNIS habitat classifications at level 2 and 3 of the hierarchy. For Eastern white oak woods this corresponds to Mediterranean thermophilous deciduous forest and for Helleno-Balkanic [*Satureja montana*] steppes, this corresponds to semi-dry perennial calcareous grassland (meadow steppe).

Conservation priority is assigned based on the habitats inputted. Neither of these habitat types are considered “irreplaceable” or of “very high” conservation priority according to EBM.

Habitat Condition Score

Habitat condition was assigned based on field survey results. Woodland was assigned “poor” condition and grassland was assigned “Moderate” condition. Under the EBM, these conditions equate to numerical scores of 1 (poor), 2 (moderate) and 3 (good). During Construction, the ECoW will confirm the condition scores during the pre-construction surveys. Targeted on-site enhancement measures will be undertaken to increase woodland condition from poor to good and grassland condition from moderate to good. To meet the project commitments of Net Gain (woodland) and NNL (grassland), this will require enhancement of 18 ha of existing woodland and 7ha of grassland, based on current data for the whole project.

[5] The shown calculations are based on all three phases of the Stip project proceeding. The balance in Phase 1 of decrease in biodiversity units using EBM is negative in terms of being able to achieve net gain for woodland and no net loss for grassland only through enhancement of remaining habitat. However, utilising the wider area of the site and determining the decrease in biodiversity units for Phase 2 and 3, the required 10% net gain for woodland and no net loss for grassland can be achieved through enhancement of existing habitat with no requirement for habitat creation.

The criteria for temperate forest & woodland and grasslands are set out in the EBM 1.0 Condition Assessment sheet (January, 2026)[6]. The results will directly inform the Net Gain feasibility analysis and the specification of enhancement measures. Updated habitat metrics will be re-calculated as part of the BAP following construction to confirm the quantitative basis for Net Gain.

Appendix C provides more information on the enhancement approach; however, the exact management measures will be defined in the BAP, including a Woodland Management Plan, which will use the baseline condition assessment to determine appropriate actions.

Strategic Significance

As Eastern white oak woods is considered Critical Habitat, it has been assigned “very high” strategic significance and Helleno-Balkanic [*Satureja montana*] steppes has been assigned “high” as it is a Priority Biodiversity Feature.

[6] https://www.ramboll.com/measuring-biodiversity

Table 4.3: Preliminary habitat metric calculation (Stip Wind Farm)

	Baseline		Post-development on-site		On-site change		Total project biodiversity % change (Including all on-site habitat enhancement + retained habitats)
Habitat group	**On-site existing area (ha)**	**On-site existing value**	**On-site proposed area (ha)**	**On-site proposed value**	**On-site area change (ha)**	**On-site unit change**	
Forest and other wooded land	66.00	316.80	62.68	353.06	-3.32	36.26	11.45%
Grasslands and lands dominated by forbs, mosses or lichens	65.40	902.52	64.49	910.76	-0.91	8.24	0.91%

Source: Mott MacDonald using EBM (Ramboll, 2026b)

4.4 Priority Biodiversity Species

In addition to habitat-based NNL and Net Gain commitments, a species based actions can be developed to reduce threats to PBF (species identified in Table B.2) and to identify conservation opportunities, thereby contributing to the achievement of NNL.

This BMP identified both general and project specific risks and opportunities as set out in Table 4.4 for species enhancement. Detailed species-specific actions will be developed and implemented through the BAP including specific measures, responsibilities, monitoring, and adaptive management requirements. Some conservation opportunities such as habitat enhancements and fauna protection are integrated into the BMP table in Chapter 3.

Table 4.4: Threats and conservation opportunities

Species group	Key threats to species	Conservation opportunities
Bats	Loss and fragmentation of foraging and commuting habitat; loss or degradation of roosting features (should any be identified in the future); reduced insect prey availability; disturbance and artificial lighting	Conservation and enhancement of woodland and edge habitats; maintenance of connected landscape features; protection of natural roosting features (e.g. mature trees); provision of bat boxes as supplementary roosting opportunities, where appropriate; management to support insect-rich habitats
Birds	Habitat loss and degradation; loss of nesting sites; disturbance during breeding and migration	Conservation of habitat mosaics (woodland, grassland, steppe); maintenance of structural diversity; protection of natural nesting habitats; provision of nesting boxes or platforms as supplementary nesting opportunities, targeted to appropriate species
Toads/ Salamanders	Loss and degradation of terrestrial and breeding habitats; pollution; altered hydrology; localised collection; habitat fragmentation	Protection and enhancement of damp terrestrial habitats and breeding sites; maintenance of natural hydrological conditions; improvement of connectivity; promotion of site stewardship to reduce collection pressure
Tortoises	Habitat loss and fragmentation; loss of open, heterogeneous habitats; direct mortality; illegal collection for pet trade	Conservation and enhancement of semi-natural open habitats; maintenance of habitat heterogeneity; retention and creation of refugia; improvement of habitat connectivity; awareness-raising and stewardship measures to discourage illegal collection
Snakes	Habitat fragmentation; loss of refugia and basking sites; illegal persecution and collection; direct mortality	Retention and creation of refugia (e.g. stone features); maintenance of open, heterogeneous habitats; enhancement of habitat connectivity; measures to reduce persecution and discourage illegal collection through awareness and site management

4.4.1 Timeline for Delivering No Net Loss/ Net Gain Outcomes

Delivery of NNL and Net Gain will follow a sequenced pathway as shown in Table 4.5 beginning with pre-construction baseline confirmation and updated habitat loss calculations, followed by development of the BAP during construction. Post-construction, enhancement and restoration actions will be implemented and monitored under the BMEP. NNL for grasslands is expected to be demonstrated within approximately two years, while Net Gain for Eastern white oak woods is anticipated over the medium to long term (e.g., 10–30 years), reflecting ecological variability and uncertainty.

Table 4.5: Timeline for delivering NNL/NG

Step	Action Required	Description of Deliverable	Responsible	Timeline
1	Final Habitat Loss Quantification	Update permanent + temporary loss areas	Alcazar Energy Partners / Biodiversity Specialist / Independent Consultant developing the BAP	Pre-construction
2	Habitat Condition Assessment Update	Confirm baseline habitat condition in line with EMB criteria	Alcazar Energy Partners Biodiversity Specialist	Pre-construction
3	Final Biodiversity Metric Calculations	Confirm baseline units and losses	Alcazar Energy Partners / Biodiversity Specialist	During construction
4	Develop BAP	Prepare full Biodiversity Action Plan	Alcazar Energy Partners	During construction
5	Identify Enhancement Areas	Confirm woodland & grassland enhancement locations	Alcazar Energy Partners / Biodiversity Specialist	During construction
6	Stakeholder Engagement / Community Liaison	Engage relevant communities and stakeholders to inform BAP development, identify constraints/opportunities, and support implementation of conservation actions where appropriate	Alcazar Energy Partners / Community Liaison Officer	During construction
6	Implement Restoration	Reinstate soils and habitats	Contractor / ECoW	Post-construction package-by-package
7	Implement Enhancement Measures	Woodland enhancement, grazing management, IAS management	Alcazar Energy Partners	Years 1–3
8	Initiate BMEP Monitoring	Begin monitoring habitat condition	Biodiversity Specialist	Year 1
9	Evaluate NNL/NG Progress	Compare EBM results to baseline	Alcazar Energy Partners / Specialist	Years 2–5
10	Adaptive Management	Apply supplementary actions	Alcazar Energy Partners / Specialist	Years 2–10
11	Demonstrate NNL	NNL for grasslands achieved	Alcazar Energy Partners	By Year 2
12	Demonstrate Net Gain	NG for woodland achieved	Alcazar Energy Partners	By Year 15
13	Long-Term Maintenance	Ongoing monitoring & reporting	Alcazar Energy Partners	Year 15 onwards

5 Bird and Bat Operational Management Framework

5.1 Purpose, Objectives and Scope of the Framework

The purpose of this Operational Bird and Bat Operational Management Framework is to:

- Establish the principles, scope, triggers and governance for operational bird and bat management;
- Define the methodologies and guidelines for successful development of Bird and Bat Operational Management Plan;
- Bridge construction phase management and monitoring design with operation phase design;
- Provide a clear decision-making framework for adaptive operational mitigation, including turbine curtailment where necessary;
- Ensure compliance with IFC Performance Standard 6, EBRD ESR6 and EIB ESS4;

Operational Bird and Bat Operational Management Framework applies to:

- All wind turbines within the Project;
- The 7 km overhead transmission line (for bird collision risk);

The scope of the Framework covers:

- High-level operation phase mitigation measures;
- Operation phase monitoring requirements;
  - Operation phase bird monitoring
  - Operation phase bat monitoring
  - Post-construction bird and bat fatality monitoring (PCFM)
- Threshold determination and triggers for adaptive management;
  - Shutdown on demand for bird mortality
  - Turbine curtailment for bat mortality
- Escalation to enhanced mitigation.

5.2 Applicable Standards and Guidance

The Framework is informed by:

- IFC Performance Standard 6 (Biodiversity Conservation);
- IFC Good Practice Note: Post-Construction Fatality Monitoring for Birds and Bats at Wind Energy Facilities;
- EBRD Environmental and Social Requirement 6;
- EIB Environmental and Social Standard 4;
- EUROBATS and BirdLife International GIIP for wind energy;
- World Bank Group and EBRD Post-Construction Bird and Bat Fatality Monitoring for Onshore Wind Energy Facilities in Emerging Markets Countries.

5.3 Operational Bird and Bat Management Framework

5.3.1 Purpose

Bird and Bat Operational Management Plan should ensure an adequate management and control of the activities that may pose bird and bat related risks associated with the operation phase of the Project. The purpose of operational phase bird and bat management plan is as follows:

- Elaborate on measures to manage and minimise potential impacts on birds and bats with special focus on CH and PBF species through the implementation of the mitigation hierarchy;
- Detail monitoring activities necessary to improve the understanding of potential impacts and to monitor the success of proposed mitigation measures;
- Solidify the means to achieve Project biodiversity requirements and goals for birds and bats which accounts for Lender institution standards and guidelines and GIIP.

The detail of the Bird and Bat Management will also take account of any requirements set out in National Permit documents or lenders requirements.

The management of bird and bat risks should be a 'live' process and therefore it should be periodically updated. The following should be outlined in relevant sections:

- Legislation and Guidelines – National and International Requirements;
- Summary of the Project impacts on birds and bats;
- The mitigation measures applicable to the Project for birds and bats;
- Requirements for monitoring and performance measurement of bird and bat management, adaptive management aligned with EUROBATS guidance (Rodrigues et al, 2014) and NatureScot (NatureScot, 2021);
- Post-Construction Bird and Bat Fatality Monitoring (PCFM) Protocol
- Shutdown on Demand (SDOD) Protocol
- Roles and Responsibilities for bird and bat management;
- Training requirements for bird and bat management;
- Data management and reporting processes.

5.4 Bird and Bat Monitoring Requirements

5.4.1 Overview

This section provides a summary of the monitoring requirements that must be implemented under the Bird and Bat Operation Management Plan. The Project will develop a robust post-construction bird and bat monitoring programme to manage risks, verify efficacy of mitigation and identify need for adaptation of mitigation.

Adaptive management informed by operational monitoring outcomes would be critical for managing collision-related risks and impacts to birds and bats. Fatality monitoring is a key component which will adhere to "Post-Construction Bird and Bat Fatality Monitoring for Onshore Wind Energy Facilities in Emerging Markets Countries" (shortened PCFM) guidance co-developed and adopted by the World Bank Group and EBRD (World Bank, 2023).

The monitoring programme will include bird monitoring and bat monitoring for

- detection of changes to the baseline,

- verification of impacts as defined in the ESIA,
- enhancement of data for mitigation and adaptive management decisions,
- detection and prevention of emerging risks before they otherwise become detected through mortality.

Vantage Point and breeding bird monitoring surveys for birds should be designed according to relevant standards and guidelines, avoid altering baseline methodology to ensure comparability with pre-construction baseline, otherwise justify any changes made. Wintering bird monitoring surveys can be added based on ongoing monitoring.

Acoustic monitoring for bats should be designed according to relevant standards and guidelines, and at height monitoring via devices installed on the WTGs are the first option since this option integrates best with informing future curtailment measures based on monitoring. Ground static acoustic can be considered a second option, should feature the same sampling locations and timeframes as in baseline for comparability between datapoints, however can be expanded for higher coverage (NatureScot ground static acoustic methodology can be preferred). Activity monitoring for bats will extent to 1km from the Project area.

As stated in the PCFM guideline, a minimum of three years after commercial operation of the WEF has begun is required, covering all relevant seasons. Current and emerging biodiversity related commitments to national authorities will also shape the course of the monitoring programme. The goal of the monitoring programme will be to:

- Compare baseline bird and bat population and activity values to operation activity levels to verify the extent of impact of the Project on bird and bat species, which will be used to better align mitigation and adaptive management;
- Establish 1st and 2nd year operation bird and bat population and activity for future studies which might occur through the lifetime of the Project, such as prior to capacity extension or repowering;
- Safeguard migratory function of the area and protect threatened species;
- Track bird and bat injury and mortality impacts due to turbines and OHL, and provide input for the optimal mitigation measures, while minimising energy production loss.

Operational monitoring will follow a risk-based approach, focusing effort on

- Species and guilds identified as CH and PBF
- Periods of elevated risk (e.g. migration, breeding, peak bat activity)
- Infrastructure components with higher risk potential (e.g. turbines at ridgelines, OHL spans in open habitat).

5.4.2 PCFM Design

A detailed “PCFM Protocol” tailored to the Project will be produced as part of the Plan or as a stand-alone document with proper integration to the Plan. The Protocol can be developed in parts in anticipation of different Phases (1, 2 3) commercial operation dates, starting with Phase 1. PCFM Protocol will aim to:

- Estimate bird and bat fatality rates attributable to the Project;
- Identify threatened and protected species affected;
- Identify and tailor mitigation measures to protect focal bird and bat species;
- Evaluate effectiveness of mitigation measures;
- Inform adaptive management decisions.

PCFM design will:

- Use the precise inputs and utilise the outputs of the PCFM Decision Support Tool (DST);
- Be staggered to begin first-year monitoring as each Phase is brought online (in other words, monitoring will start after COD Phase 1 and will be expanded to 2 and 3 after their respective CODs) ;
- Cover all relevant seasons;
- Cover turbines and the OHL;
- Be statistically robust and repeatable;
- Include carcass searches, searcher efficiency trials and carcass persistence trials;
- Include relevant carcass size classes in trials and analysis (small and large);
- Apply bias correction to derive fatality estimates;
- Be tailored separately for birds and bats, reflecting differing detectability and scavenger removal rates.

First-year design for each partial operation phase will require monitoring of all operational turbines and all accessible segments of the OHL. In practice this means for Phase 1 (turbines 1-21) with 21 turbines, first-year design must include all 21 turbines brought online. Subsequent year designs will sample a representative subset of turbines. Search plots will reflect turbine dimensions and local terrain.

For OHL, subsequent year monitoring can focus on spans identified as higher collision risk via first-year monitoring (e.g. valley crossings, open steppe).

As required by the PCFM approach, the Protocol will be updated following the first-year results to determine subsequent year designs.

5.4.2.1 Data Collection, Management and Interpretation

Data collected will include:

- Species identification (morphological supplemented with DNA sampling);
- Date, time and location;
- Precise coordinates, distance and direction from component;
- Condition of carcass;
- Environmental conditions;
- Notes on scavenger sightings and activity.

Corrected fatality rates will be calculated using:

- Searcher efficiency results;
- Carcass persistence trial results ;
- Density weighted proportions calculated specific to the project;
- Statistical fatality estimation tools (GenEst).

The PCFM monitoring results, along with bird and bat studies for easy cross reference, will be reported biannually (interim progress report and final annual report) in an “Annual Bird, Bat and Fatality Monitoring Report”. The “Final Annual Bird, Bat and Fatality Monitoring Report” will,

- Clearly outline the methodology of bird, bat and fatality monitoring;
- Explain any deviations, predict significance and impact to data quality;
- Searcher efficiency results;
- Carcass experimental trial results;
- Density Weighted Proportions calculations;

- Report all carcass observations during routine search;
- Note anecdote findings outside of routine search (incidental);
- Report for birds (two size class) and bats separately;
  - Fatalities per turbine per year
  - Total fatalities per season
  - Total fatalities per week
  - Other breakdown of interest to refine high-risk parameter combinations;
- Append raw data in text format for GenEst input.

5.5 Operational Mitigation Measures

A high-level overview of operational mitigation measures for bird and bat risks and impacts is provided below. Since ongoing monitoring will be key for determining the correct approach for some measures, a rationale for adopting the measures are outlined, to be further developed within the Bird and Bat Operational Management Plan.

For birds, the following measures will be applied from day one and featured as core measures in the plan,

- Shutdown on demand (SDOD) protocol will be developed and in effect, and shutdown input will be provided by one of the three following options to be elaborated on in the SDOD Protocol as part of Operation Management Plan, based on a cost-effectiveness analysis;
  - Observed led, where a trained staff member provides input to SCADA technicians for shutdown
  - Automated, where radar, cameras, acoustic sensors, AI or any combination of technology alternatives detect species and integrate with SCADA for input for shutdown,
  - Hybrid, solutions that combine staff input with technology assistance in any combination
- Blade feathering applied to prevent “free-wheeling” of turbines (idle rotation while not generating energy)
- Lighting control: Artificial lighting kept to a minimum, automatic lights preferred wherever feasible, lighting inward and downward facing, warm LEDs preferred over HPS. Aviation lights on turbines will flash simultaneously.
- Control of noise, vibration, dust, inorganic and especially organic waste (which can attract species to risk areas) during operation and maintenance activities.
- Ban on hunting, trapping, trading, feather collecting and persecution of bird species by all personnel.

For bats, the following measures will be applied from day one and included as core measures in the plan:

- Blade feathering applied to prevent “free-wheeling” of turbines (idle rotation while not generating energy)
- Lighting control: Artificial lighting kept to a minimum, automatic lights preferred wherever feasible, lighting inward and downward facing, warm LEDs preferred over HPS. Aviation lights on turbines will flash simultaneously.
- Control of noise, vibration, dust, inorganic and especially organic waste (which can attract species to risk areas) during operation and maintenance activities.
- A PCFM Protocol will be developed and run for at least 3 years after the COD of each Phase, which may prescribe curtailment based on mortality estimations, in addition to day one measure as follows,

– To protect sensitive bat species and prevent potential mortality of CH species until PCFM results are obtained, timed curtailment will be applied from day one targeting high activity periods of the high collision risk CH species. *Myotis* species and *Rhinolophus* species are low collision risk. High BAI was not identified for *Barbastella barbastellus* which is medium collision risk, nor *Nyctalus* species which are high collision risk. Timed curtailment to be applied in September and October when *Miniopterus schreibersii* is active (from 1-hour prior to dusk to after 1-hour after dawn, night temperatures > 10 degree Celsius, precipitation <1mm, wind speed <6.5 m/s) for specific WTGs as identified based on construction baseline and/or smart curtailment via acoustic bat detectors installed at height at the WTGs or at ground to determine bat activity and inform necessary shutdowns,

Based on ongoing monitoring results, turbine curtailment may be necessary. Based on a cross-study of acoustic bat monitoring (either at height or ground static), and mortality estimations, the following measures may be applied,

- Turbine curtailment measures to target higher collision risk parameters for bats based on further monitoring;
  - Time based or seasonal curtailment, if any additional specific times of the day, certain weeks, months or seasons are identified for implementation;
  - Smart curtailment, using bat monitoring systems to track real-time activity and/or species data collected from the bat detectors at WTGs and possess turbine control to fine tune curtailment, and further refine for environmental parameters (wind speed, temperature, humidity, time of the night etc) to minimise production loss;
- Habitat management to discourage blade height activity near turbines, alter foraging or commuting routes, roosting structures;
- Ban on persecution of bat species and collection of bat guano, if caves are later chanced upon during construction or operation phases, by all personnel.

5.5.1 Adaptive Management

Adaptive management will be informed by findings from the ongoing operational monitoring described above. Where it is identified that bird and bat targets are not being met or additional emerging risk is identified, this will be rectified through appropriate adaptive management. A decision tree approach linking triggers to thresholds and to a single/series of actions can be integrated.

Fatality thresholds will be determined in the Bird and Bat Operational Management Plan for bird and bat species of concern,

- **Bats:** A global decision-making methodology for quantifying bat mortality thresholds has been developed by Frick et al (2026) which is a modified **Potential Biological Removal (PBR)** methodology that addresses bat data gaps. The plan will include calculation of quantitative thresholds for adaptive management according to this framework or justify other threshold calculations.
- **Birds:** Thresholds to be calculated based on available data and may be accomplished via PBR, or **Population Viability Analysis (PVA)**. When population data are not sufficient for calculations, fixed annual fatality numbers can be applied, selection of **fixed numbers** will be scientifically backed.

Other adaptive management measures, based on ongoing monitoring and evaluation of emerging risks, or failure to meet targets, may generally include, and to be further revised within Operational Plan,

- Revision of SDOD Protocol to increase shutdown effectiveness, achieve higher responsiveness, reduction of turbine stop times, increased detection capabilities, etc,
- Ongoing review and revision of PCFM Protocol to fine tune curtailment measures, increase detection capability, switch and replace ineffective or malfunctioning technologies etc,
- If electrocution impact is identified through ongoing monitoring (which is not anticipated due to pylon design and configuration, and WTG cabling is undergrounded), additional preventative measures may be applied based on specific causes where feasible
- Enhancement or increase of bird diverters, increased maintenance of diverters, switching types or using additional types based on species specific needs;
- Installation of bird deterrent components (e.g. spikes) on high-risk OHL pylons to dissuade perching and nesting;
- Provision of alternative nesting structures at lower risk locations (platforms, boxes);
- Habitat management to discourage high-risk flight behaviour near turbines (vegetation height, prey control, perch or roost control, habitat enhancement elsewhere to attract species away from WTGs, etc);

Adaptive management will be triggered where:

- Fatalities involve priority, threatened or protected species;
- Fatality rates exceed baseline expectations or regional benchmarks;
- Spatial or temporal clustering of fatalities is observed;
- OHL collisions are recorded despite installed bird diverters.

5.6 Responsibilities

Bird and Bat Operational Management Plan will clearly define roles and responsibilities for mitigation measures and monitoring requirements. Updates and reviews of the plan will be carried out by the relevant Alcazar Energy Partners and their expert advisors.

Mitigation measures will be implemented either by Alcazar Energy Partners, through biodiversity experts or implemented by / facilitated by the BOP Contractor or Operator..

Monitoring will be overseen by O&M Company’s qualified bird and bat specialist and audited by Alcazar Energy Partners or a bird and bat specialist on behalf of Alcazar Energy Partners.

The Operator retains overall responsibility for implementation;

Operational decisions are authorised through a defined escalation pathway.

6 Monitoring, Compliance, Adaptive Management and Reporting

6.1 Compliance, Inspection and Audit

During construction, biodiversity compliance monitoring will be undertaken in line with Table 3.1 to confirm that avoidance and minimisation measures are effectively implemented in accordance with the mitigation hierarchy and the requirements of IFC, EBRD and EIB. Monitoring will focus on compliance with approved disturbance footprints within the Urban Planning Boundary, protection of retained vegetation and sensitive habitats, and the management of risks to terrestrial fauna. An ECoW will be responsible for construction activities, including pre-clearance checks, supervision of vegetation clearance, and inspection of exclusion zones and fauna protection measures. A suitably qualified Biodiversity Specialist will oversee those. Any incidents, non-compliance, or fauna injuries or mortalities will be recorded and reported, and corrective actions implemented.

Internal audits of construction-phase biodiversity compliance will be undertaken at least every six months during active construction, and additionally in response to significant incidents, repeated non-compliance, or material changes to construction activities. Where required by lenders or regulators, independent audits will be undertaken at defined intervals to provide external assurance of compliance with IFC, EBRD and EIB.

6.2 Adaptive Management

Adaptive management will be applied during the construction phase to respond effectively to unanticipated impacts, non-compliance, or emerging biodiversity risks associated with Stip 1 activities. The adaptive management framework is designed to ensure that mitigation measures remain effective, that impacts are kept within predicted and acceptable limits, and that construction activities continue to align with the mitigation hierarchy and biodiversity performance objectives.

6.2.1 KPI-Based Triggers for Adaptive Management

Adaptive management will be triggered where construction-phase KPIs set out in Table 3.1 in this BMP are not met or are exceeded.

Project-specific triggers include:

- Vegetation clearance associated with turbine bases, platforms, crane pads, road widening, pylons or substation extending beyond approved limits shown on construction drawings;
- Damage to retained vegetation adjacent to internal road widening or access tracks, including root damage or loss of protective fencing;
- Fauna injury, mortality, or entrapment associated with open trenches, foundation excavations, or temporary fencing within Project areas;
- Repeated near-miss events involving fauna movement along road widening corridors or around pylon locations;
- Failure of exclusion zones or fauna protection measures to remain effective as construction progresses across multiple turbine locations;
- Inspection or audit findings indicating declining performance against vegetation protection or fauna management KPIs.

Where KPI non-performance is identified, the scale of the response will reflect the extent of impact and the sensitivity of the affected area.

6.2.2 Corrective and Preventative Measures

Corrective and preventative measures will be selected to directly address the cause of the KPI exceedance or non-performance and the specific construction activity involved.

Examples of project-specific measures include:

- Strict limitation of turbine laydown areas or crane pad extents to avoid further vegetation disturbance;
- Adjustment of road widening techniques or working widths in constrained sections to reduce edge effects on adjacent habitats;
- Temporary cessation of works at specific turbine, pylon or trench locations until fauna protection measures are reinstated or improved;
- Installation of additional fauna escape ramps or covers for trenches where repeated entrapment risks are identified;
- Strengthening or relocation of exclusion fencing where repeated breaches occur during road or substation construction;
- Targeted toolbox talks for crews working on turbines, roads, or pylons where KPI under-performance is linked to specific activities.

All corrective and preventative measures will be documented, assigned clear responsibility, and tracked to completion.

6.2.3 Escalation and Decision-Making Process

Escalation and decision-making for adaptive management during the construction phase will follow a structured and proportionate process, based on the severity of KPI non-performance and the level of biodiversity risk associated with Project activities.

Where KPI deviations or emerging risks are minor and localised, corrective actions will be agreed and implemented at site level following advice from the ECoW. These actions will be focused on immediate resolution and prevention of recurrence at the affected turbine, road section, pylon location, or substation area.

Where KPI non-performance is repeated, affects multiple construction elements, or cannot be resolved through site-level measures, the issue will be escalated for project-level decision-making. This could include review of construction methods, sequencing, or access arrangements, informed by ecological advice, to determine whether changes to controls or working practices are required.

Significant or persistent KPI exceedances, including unauthorised vegetation clearance, fauna mortality events, or systemic failure of mitigation measures, will be escalated to senior decision-makers. In such cases, works may be paused in the affected areas until appropriate adaptive measures are agreed and implemented.

Where escalation results in changes to mitigation measures, monitoring requirements, or construction controls, this BMP will be reviewed and updated accordingly, and the revised requirements communicated to all relevant parties to ensure consistent implementation across the Stip Wind Farm Project.

6.3 Reporting and Communication

Reporting and communication during the construction phase will ensure that biodiversity performance associated with the Project is appropriately documented, reviewed, and made available for regulatory and lender oversight. Reporting processes are designed to support internal management of biodiversity risks, facilitate lender construction monitoring and due-diligence review, and provide a mechanism for continuous improvement during subsequent construction stages (Stip 2 and Stip 3).

6.3.1 Internal Reporting

Internal reporting will occur throughout construction to ensure effective communication between the BOP Contractor, the ECoW, and Alcazar Energy Partners.

Routine internal reporting will include:

- Recording of monitoring results, inspections, and site observations by the ECoW;
- Documentation of KPI performance, including any deviations, near-misses, or incidents;
- Communication of required corrective or preventative actions to relevant site personnel;
- Confirmation that corrective actions have been implemented and closed out.

Internal reporting will be reviewed on a regular basis to identify trends, recurring issues, or areas where mitigation measures or construction controls can be improved. Outcomes of this review will be used to refine construction practices and biodiversity controls as works progress within Stip 1.

6.3.2 Provision of Information for Lender Construction Monitoring

Internal biodiversity monitoring records and performance summaries will be made available to lenders as part of their construction monitoring and due-diligence processes, in accordance with financing requirements.

Information provided for lender review may include:

- Summaries of construction-phase monitoring and inspection results;
- Evidence of performance of construction-phase KPIs;
- Records of incidents, near-misses, and non-compliances;
- Details of corrective and adaptive management measures implemented;
- Findings from construction-phase audits.

Feedback provided through lender construction monitoring will be reviewed and, where relevant, incorporated into ongoing construction practices and future stage planning.

6.3.3 Incident Reporting Timeframes

Biodiversity related incidents and near-misses will be recorded as part of the internal reporting process. Incident records will include the location, activity, biodiversity receptor affected, and any immediate or follow-up actions taken.

Incidents with potential material biodiversity implications will be communicated promptly to Alcazar Energy Partners and will be reported to lenders through established construction monitoring reporting arrangements.

6.4 Review and Updating of the BMP

This BMP has been prepared to define the biodiversity management requirements, construction-phase protocols, and post-construction restoration measures to be implemented by the BOP Contractor during delivery of Stip 1. It has also been prepared to include a NNL/ Net Gain Strategy to be further developed as part of a BAP and a Bird and Bat Operational Management Framework to be further developed into a Bird and Bat Operational Management Plan.

The BMP is not intended to operate as a live document during active construction but may be reviewed and updated where future stages of the project require revised biodiversity management arrangements (e.g. Stip 2 and Stip 3).

This BMP also provides a framework for the transition from construction-phase management into longer-term biodiversity management under the BAP and BMEP, as described in Section 5.5. A review of the BMP will be undertaken after the first year of implementation, with further updates made on a needs-basis in accordance with the triggers outlined in Section 6.4.1.

6.4.1 Review Triggers

Review of this BMP will be undertaken where there is a clear requirement to confirm its suitability for construction activities or future stages of the Stip project. Review triggers include:

- Completion of Stip 1, or progression to subsequent construction stages, where audit findings, monitoring outcomes, or lessons learned indicate that refinements to construction-phase biodiversity protocols are required prior to, or during, commencement of Stip 2 and/or Stip 3;
- Confirmation that blasting is required for any construction stage, where the nature, location, timing, or potential environmental impacts of blasting activities warrant updates to construction-phase biodiversity protocols and associated mitigation measures;
- Overlap in construction activities between Stip 2 and Stip 3, where concurrent works or sequencing arrangements indicate that construction-phase biodiversity protocols require clarification or adjustment to ensure consistent application across overlapping stages;
- Audit findings or significant construction-phase incidents demonstrating that existing construction protocols are not appropriate or sufficiently robust for later or overlapping construction stages;
- Material changes to project design or construction scope affecting future works, including changes to turbine locations, internal road alignments, pylon locations, or ancillary infrastructure proposed for Stip 2 or Stip 3;
- Lender or regulatory requirements for updated or stage-specific biodiversity management documentation prior to or during subsequent construction stages.

Review triggers do not include post-construction monitoring or operational-phase performance, which will be addressed through separate plans.

6.4.2 Approval of BMP Updates

Any revised or new BMP prepared for Stip 2 or Stip 3 will be subject to formal approval prior to implementation. Approval will confirm that the document reflects project commitments, incorporates relevant construction-phase lessons learned, and remains aligned with applicable regulatory approvals and lender requirements.

Where required, approved BMPs will be provided to regulators and lenders prior to commencement of the relevant construction stage.

6.4.3 Version Control and Document Management

Each approved BMP will be subject to formal version control to clearly identify its applicability to specific construction stages.

Version control will include:

- Clear identification of the Stip Phase to which the BMP applies;
- A revision history summarising changes and the basis for document updates or replacement;
- Controlled distribution to ensure that the BOP Contractor and relevant project personnel are working to the correct approved BMP.

Superseded BMPs will be retained for reference and audit purposes but will not apply to subsequent construction stages unless expressly stated.

6.5 Transition to BAP, BMEP and Bird and Bat Operational Management Plan During Construction

6.5.1 Purpose of the Transition

This BMP establishes the biodiversity management applicable to pre-construction, construction and post-construction activities, including implementable mitigation, control and protection measures. In accordance with GIIP and lender requirements, more detailed and outcome-focused biodiversity plans, namely the BAP, BMEP and Bird and Bat Operational Management Plan, will be developed progressively during construction.

The staged development of these plans ensures that:

- Long-term biodiversity actions are informed by verified construction impacts and as-built layouts;
- Monitoring programmes are risk-based, proportionate and site-specific;
- Any compensation measures are designed using robust, up-to-date information and appropriate stakeholder engagement; and
- Operational bird and bat monitoring and mitigation measures are designed using robust, up-to-date information.

6.5.2 Scope of the BMP versus the BAP, BMEP and Bird and Bat Operational Management Plan

This BMP provides:

- Construction-phase biodiversity risk management to Stip 1;
- Implementable plans for:
  - Vegetation removal, restoration and invasive species management;
  - Fauna protection and relocation;
  - Bird and bat mitigation, including overhead line bird diverters;
- A framework-level approach for operational bird and bat management.

The subsequent plans will address:

- Biodiversity Action Plan:
  - Long-term biodiversity objectives and performance outcomes;
  - Detailed management and enhancement actions for priority habitats and species;

  - Delivery of on-site habitat enhancement measures to achieve NNL and Net Gain.
- Biodiversity Monitoring and Enhancement Plan:
  - Post-construction and operational-phase biodiversity monitoring methodologies;
  - Monitoring of habitat condition, restoration success and enhancement performance;
  - Adaptive management thresholds and review processes.
- Operational Bird and Bat Management Plan:
  - Post-construction fatality monitoring using standardised carcass search protocols designed to produce statistically robust estimates of bird and bat mortality;
  - Application of appropriate correction factors, including searcher efficiency, carcass persistence (scavenger removal), and search area correction, to derive adjusted fatality rates;
  - Species-specific and priority-species monitoring, with targeted approaches for threatened, migratory or collision-sensitive bird and bat species where relevant;
  - Integration of operational data (e.g. turbine operation, wind speed, seasonal patterns) to support interpretation of fatality patterns and risk drivers;
  - Defined trigger criteria based on adjusted fatality rates or observed trends, linked to pre-agreed operational management responses;
  - Evaluation of the effectiveness of operational mitigation measures;
  - Ongoing review of monitoring results to inform adaptive management and refinement of monitoring effort during operation.

6.5.3 Triggers for Development of the BAP, BMEP and Bird and Bat Operational Management Plan

Preparation of the BAP, BMEP and Operational Bird and Bat Monitoring Plan will be initiated during construction and informed by the following milestones:

- Completion of vegetation clearance and enabling works (record of actual tree and habitat loss);
- Completion of construction activities in areas of higher biodiversity sensitivity (Eastern white oak woods);
- Availability of final as-built layouts for turbines, overhead lines and access roads;
- Early evidence on the effectiveness of construction-phase mitigation measures;
- Prior to commencement of commissioning activities.

This approach allows the BAP and BMEP to be grounded in actual impact footprints, refined risk understanding and construction-phase experience.

6.5.4 Development of the Biodiversity Action Plan

The BAP will translate the NNL/ Net Gain commitments set out in this BMP into site-specific, measurable and time-bound biodiversity actions for the operational phase. It will:

- Address residual impacts following application of the mitigation hierarchy;
- Define long-term management actions for priority habitats and species;
- Set out on-site habitat enhancement measures to deliver NNL and Net Gain;
- Establish clear responsibilities and implementation timeframes for operational-phase biodiversity management.

No biodiversity offsetting is proposed for the Stip 1 project. Delivery of NNL and Net Gain will be achieved through on-site habitat restoration, enhancement and management measures.

6.5.5 Development of the Biodiversity Monitoring and Evaluation Plan

The BMEP will establish the detailed monitoring framework required to:

- Track biodiversity performance against BAP objectives;
- Evaluate the effectiveness of mitigation, restoration and enhancement measures;
- Inform adaptive management throughout the operational phase.

The BMEP will cover:

- Habitat condition and restoration success monitoring;
- Monitoring of on-site habitat enhancement performance;
- Defined reporting requirements and review intervals.

6.5.6 Development of the Bird and Bat Operational Management Plan

The Operational Bird and Bat Management Plan will develop the Operational Bird and Bat Monitoring Framework set out in this BMP into a detailed, implementable plan for the operational phase. Preparation of the Bird and Bat Operational Management Plan will be initiated during construction, prior to commencement of commissioning, ensuring that post-construction fatality monitoring can commence at the start of operations.

6.5.7 Interim Measures and Continuity

Until the BAP, BMEP and Bird and Bat Operational Management Plan are finalised:

- All mitigation and management measures set out in this BMP remain fully applicable;
- Construction-phase monitoring, inspections and compliance checks will continue;
- Any significant biodiversity incidents or unanticipated impacts will be managed through the adaptive management provisions of this BMP.

This ensures there is no gap in biodiversity management between construction and operation.

6.5.8 Approval and Integration

The BAP, BMEP and Bird and Bat Operational Management Plan will be:

- Prepared during construction;
- Finalised and approved prior to commissioning; and
- Implemented during the operational phase.

Once approved, these plans will supersede the relevant framework-level provisions of this BMP for the operational phase, including those relating to NNL / Net Gain delivery and bird and bat operational monitoring and mitigation.

References

Anna Rita Di Cerbo & Carlo M. Biancardi (2004). Seasonal activity and thermobiology of Bombina v. variegata in Lombardy (Seriana Valley, northern Italy), Italian Journal of Zoology, 71:S2, 143-146, DOI: 10.1080/11250000409356623.

CDER, 2023. Guidelines for soil management in road projects. Available at: https://www.cedr.eu/docs/view/650066e122017-en

DEFRA, 2009. Construction Code of Practice for the Sustainable Use of Soils on Construction Sites. Available at: https://assets.publishing.service.gov.uk/media/5b2264ff40f0b634cfb50650/pb13298-code-of-practice-090910.pdf

Elmberg, J., Palmheden, L., Edelstam, C., Hagman, M. and Kärvemo, S., 2024. Climate change-induced shifts in survival and size of the worlds' northernmost oviparous snake: A 68-year study. *PloS one*, *19*(3), p.e0300363.

European Bank for Reconstruction and Development (EBRD), 2024. *Environmental and Social Policy*. Available at: https://www.ebrd.com/home/news-and-events/publications/institutional-documents/environmental-and-social-policy-2024.html. (Accessed: 18 November 2025).

European Bank for Reconstruction and Development (EBRD), 2025. https://www.ebrd.com/home/who-we-are/ebrd-values/ebrd-environmental-social-sustainability/reports-and-policies/ebrd-performance-requirements.html#ESR%206 (Accessed: 5 January 2026).

European Commission, 2019. Action plan to maintain and restore to favourable conservation status the habitat type 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (*important orchid sites). Available at: https://www.ecologic.eu/17536

European Environment Agency (EEA), 2019. Eastern white oak woods. Available at: https://eunis.eea.europa.eu/habitats/10270 [Last accessed: 11/02/2026].

European Investment Bank. (2022). Environmental and Social Sustainability Framework. European Investment Bank. Available at: https://www.eib.org/files/publications/eib_environmental_and_social_standards_en.pdf (Accessed: 5 January 2026).

Ferrer, M, et al. (2020). Efficacy of different types of "bird flight diverter" in reducing bird mortality due to collision with transmission power lines. Global Ecology and Conservation, 23, e01130. https://doi.org/10.1016/j.gecco.2020.e01130

Forest Research, 2025. The management and creation of woodland for biodiversity and wider environmental benefits. https://cdn.forestresearch.gov.uk/2025/01/FRRN046.pdf

Frick, W. F., Whitby, M., Wilson, D., MacEwan, K. L., Hulka, S., Akre, K. L., & O'Mara, M. T. (2026). A global decision framework for reducing bat fatalities at wind energy facilities. Ecological Solutions and Evidence, 7(1). https://doi.org/10.1002/2688-8319.70189

Harmer, R., Kerr, G. & Thompson, R., 2010. Managing native broadleaved woodland. Edinburgh, Forest Research

International Finance Corporation [IFC] (2012) Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources. Washington, D.C.: IFC [Online]. Available at: https://www.ifc.org/en/insights-reports/2012/ifc-performance-standard-6

International Finance Corporation [IFC] (2019) Guidance Note 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources. Washington, D.C.: IFC [Online]. Available at: https://www.ifc.org/content/dam/ifc/doc/2010/20190627-ifc-ps-guidance-note-6-en.pdf

IUCN, 2026. *Hermann's Tortoise*. Available at: https://www.iucnredlist.org/species/21648/268511652#habitat-ecology. [Las accessed: 06/02/2026].

Macedonian Ecological Society (2025). EP for Birds LIFE Project – Safe powerlines for endangered birds. https://mes.org.mk/blog/ep-for-birds-life-project-safe-powerlines-for-endangered-birds/. (Accessed: 6 February 2026).

NatureScot (2021). Bats and onshore wind turbines - survey, assessment and mitigation. (Accessed: 6 February 2026).

P&R Technologies, Inc. (2024). FireFly® Ultra Bird Diverter. https://pr-tech.com/product/firefly-ultra-bird-diverter/ (Accessed: 6 February 2026).

Ramboll (2026a). Ramboll European Biodiversity Metric User Guide. Version 1.0. January 2026

Ramboll (2026b). Ramboll European Biodiversity Metric. Version 1.0. January 2026. Available at: https://www.ramboll.com/measuring-biodiversity. (Accessed: 17 February 2026).

Raptor Protection of Slovakia (2021). Electrocutions & Collisions of Birds in EU Countries: The Negative Impact & Best Practices for Mitigation. (Accessed: 6 February 2026).

Renewables Grid Initiative (2014) Avian-Power Line Collision Overview of Risk Factors & Effectiveness of Wire Markers. (Accessed: 6 February 2026).

Rodrigues, L., Bach, L., Dubourg-Savage, M., Karapandža, B., Kovač, D., Kervyn, T., Dekker, J., Kepel, A., Bach, P., Collins, J., Harbusch, C., Park, K., Micevski, B. & Minderman, J. (2015) Guidelines for Consideration of Bats in Wind Farm Projects: Revision 2014. EUROBATS Publication Series No. 6. Available at: http://www.eurobats.org/sites/default/files/documents/publications/publication_series/pubseries_no6_english.pdf. (Accessed: 6 February 2026).

Veres, K., et al, 2025. Forest restoration interventions in temperate oak woodlands benefit epiphyte communities–The effect of gap openings and deadwood enrichment on bryophytes and lichens. *Forest Ecology and Management*.

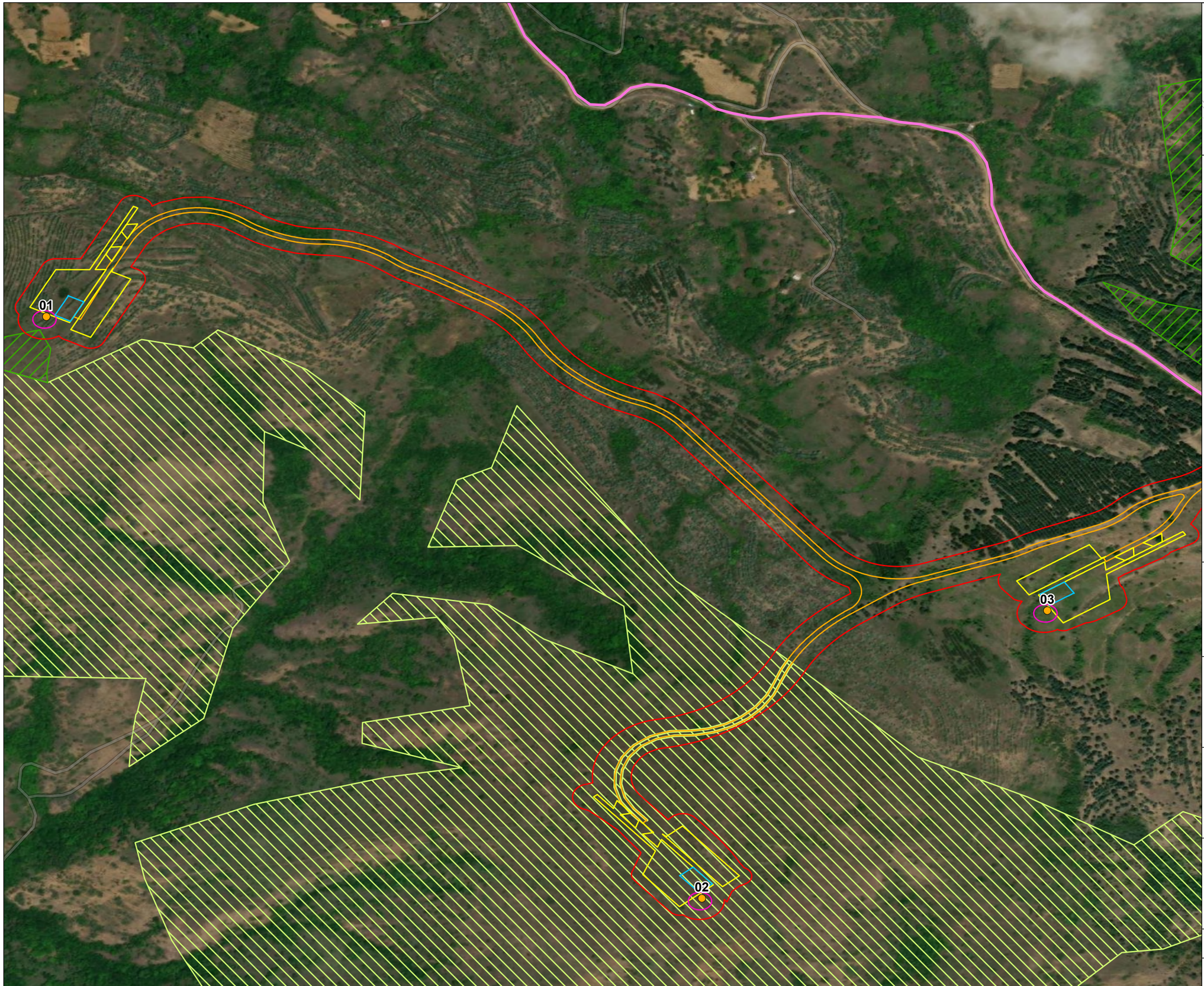
World Bank (2023). Post-Construction Bird and Bat Fatality Monitoring for Onshore Wind Energy Facilities in Emerging Markets Countries. (Accessed: 6 February 2026).

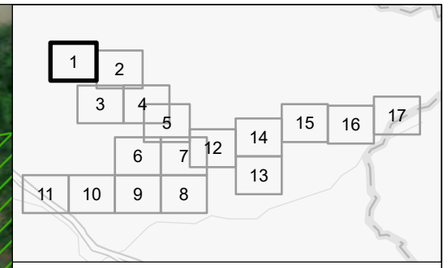
Yeltekin, O Ö. (2021). Trakya'da üreyen ve kişlayan şah kartal (Aquila heliaca) üzerine araştirmalar. Masters Thesis.Trakya Üniversitesi.

Zając, B., 2022. Aquatic hibernation of Fire Salamanders (Salamandra salamandra): A mini review and new observations*. SALAMANDRA*, *58*(3), pp.231-234.

Appendices

A. Maps





Redline boundary

Project components

- Stip 1 wind turbine
- Service road
- Internal road
- Overhead line
- Cranepad
- Foundation
- Platform
- Substation and car park

Existing infrastructure

- Existing OHL

Habitat type

- Helleno-Balkanic [Satureja montana] steppe
- Eastern Quercus pubescens wood

Coordinate system: GCS WGS 1984; Datum: WGS 1984

Data sources: Project components and existing infrastructure: Alcazar Energy, 2025; Habitat: Created by Mott MacDonald from combination of survey data (Maneko, 2025) and © ESA WorldCover project / Contains modified Copernicus Sentinel data (2021) processed by ESA WorldCover consortium.
Background mapping: Vantor, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Mott MacDonald
10 Fleet Place
London, EC4M 7RB
United Kingdom
T +44 (0)20 7651 0300
W mottmac.com

ALCAZAR ENERGY

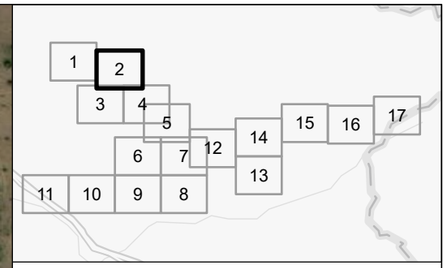
Stip Wind Farm North Macedonia

Project Overview - Stip 1
Sheet 1 of 17

Drawn	GIS Checked	Checked	Approved
K Vahakuopus	**J Poole**	**J Poole**	**R Griffiths**
Scale at A3	Status	Revision	Security
1:5,000	**INF**	**01**	**STD**

Project Overview - Stip 1

0 100 200 300 400 m



Redline boundary

Project components

- Stip 1 wind turbine
- Service road
- Internal road
- Overhead line
- Cranepad
- Foundation
- Platform
- Substation and car park

Existing infrastructure

- Existing OHL

Habitat type

- Helleno-Balkanic [Satureja montana] steppe
- Eastern Quercus pubescens wood

Coordinate system: GCS WGS 1984; Datum: WGS 1984

Data sources: Project components and existing infrastructure: Alcazar Energy, 2025; Habitat: Created by Mott MacDonald from combination of survey data (Maneko, 2025) and © ESA WorldCover project / Contains modified Copernicus Sentinel data (2021) processed by ESA WorldCover consortium.
Background mapping: Vantor, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Mott MacDonald
10 Fleet Place
London, EC4M 7RB
United Kingdom
T +44 (0)20 7651 0300
W mottmac.com

ALCAZAR ENERGY

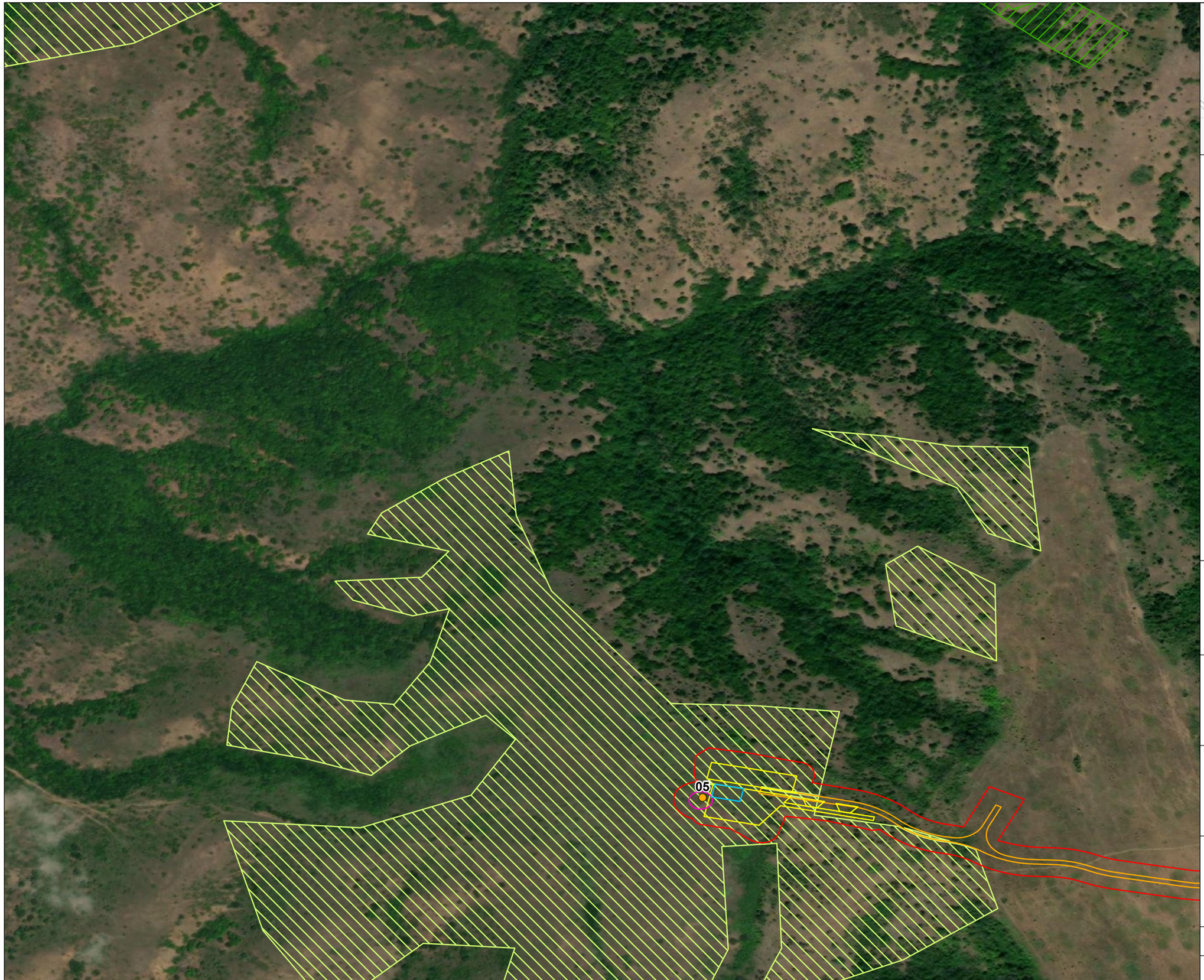
Stip Wind Farm North Macedonia

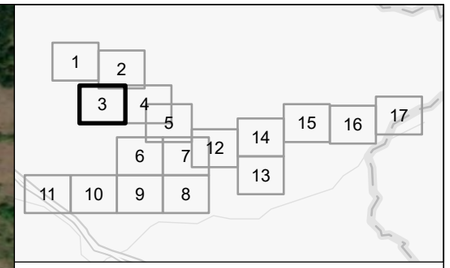
Project Overview - Stip 1
Sheet 2 of 17

Drawn	GIS Checked	Checked	Approved
K Vahakuopus	**J Poole**	**J Poole**	**R Griffiths**
Scale at A3	Status	Revision	Security
1:5,000	**INF**	**01**	**STD**

Project Overview - Stip 1

0 100 200 300 400 m





Redline boundary

Project components

- Stip 1 wind turbine
- Service road
- Internal road
- Overhead line
- Cranepad
- Foundation
- Platform
- Substation and car park

Existing infrastructure

- Existing OHL

Habitat type

- Helleno-Balkanic [Satureja montana] steppe
- Eastern Quercus pubescens wood

Coordinate system: GCS WGS 1984; Datum: WGS 1984

Data sources: Project components and existing infrastructure: Alcazar Energy, 2025; Habitat: Created by Mott MacDonald from combination of survey data (Maneko, 2025) and © ESA WorldCover project / Contains modified Copernicus Sentinel data (2021) processed by ESA WorldCover consortium.
Background mapping: Vantor, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

MOTT MACDONALD

Mott MacDonald
10 Fleet Place
London, EC4M 7RB
United Kingdom
T +44 (0)20 7651 0300
W mottmac.com

ALCAZAR ENERGY

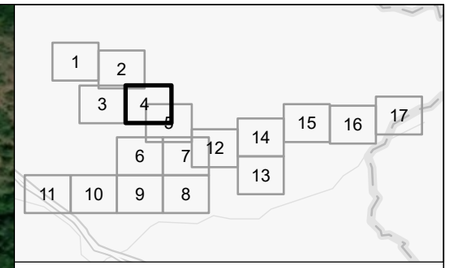
Stip Wind Farm North Macedonia

Project Overview - Stip 1
Sheet 3 of 17

Drawn	GIS Checked	Checked	Approved
K Vahakuopus	**J Poole**	**J Poole**	**R Griffiths**
Scale at A3	Status	Revision	Security
1:5,000	**INF**	**01**	**STD**

0 100 200 300 400 m

Project Overview - Stip 1



Redline boundary

Project components

- Stip 1 wind turbine
- Service road
- Internal road
- Overhead line
- Cranepad
- Foundation
- Platform
- Substation and car park

Existing infrastructure

- Existing OHL

Habitat type

- Helleno-Balkanic [Satureja montana] steppe
- Eastern Quercus pubescens wood

Coordinate system: GCS WGS 1984; Datum: WGS 1984

Data sources: Project components and existing infrastructure: Alcazar Energy, 2025; Habitat: Created by Mott MacDonald from combination of survey data (Maneko, 2025) and © ESA WorldCover project / Contains modified Copernicus Sentinel data (2021) processed by ESA WorldCover consortium.
Background mapping: Vantor, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

MOTT MACDONALD

Mott MacDonald
10 Fleet Place
London, EC4M 7RB
United Kingdom
T +44 (0)20 7651 0300
W mottmac.com

ALCAZAR ENERGY

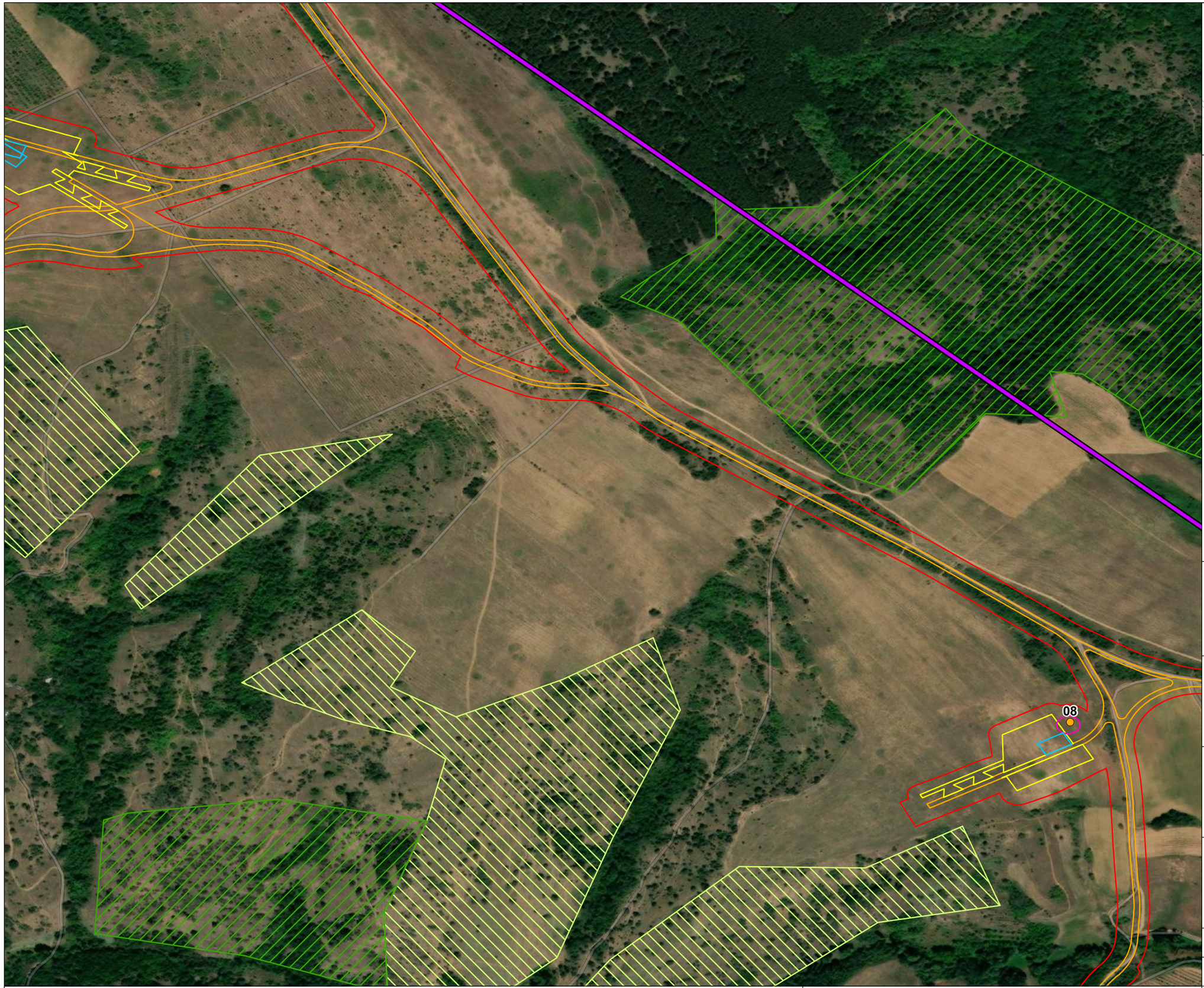
Stip Wind Farm North Macedonia

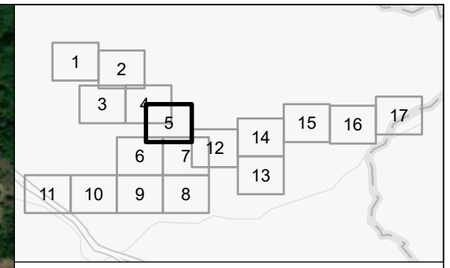
Project Overview - Stip 1
Sheet 4 of 17

Drawn	GIS Checked	Checked	Approved
K Vahakuopus	**J Poole**	**J Poole**	**R Griffiths**
Scale at A3	Status	Revision	Security
1:5,000	**INF**	**01**	**STD**

0 100 200 300 400 m

Project Overview - Stip 1





Redline boundary

Project components

- Stip 1 wind turbine
- Service road
- Internal road
- Overhead line
- Cranepad
- Foundation
- Platform
- Substation and car park

Existing infrastructure

- Existing OHL

Habitat type

- Helleno-Balkanic [Satureja montana] steppe
- Eastern Quercus pubescens wood

Coordinate system: GCS WGS 1984; Datum: WGS 1984

Data sources: Project components and existing infrastructure: Alcazar Energy, 2025; Habitat: Created by Mott MacDonald from combination of survey data (Maneko, 2025) and © ESA WorldCover project / Contains modified Copernicus Sentinel data (2021) processed by ESA WorldCover consortium.
Background mapping: Vantor, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

MOTT MACDONALD

Mott MacDonald
10 Fleet Place
London, EC4M 7RB
United Kingdom
T +44 (0)20 7651 0300
W mottmac.com

ALCAZAR ENERGY

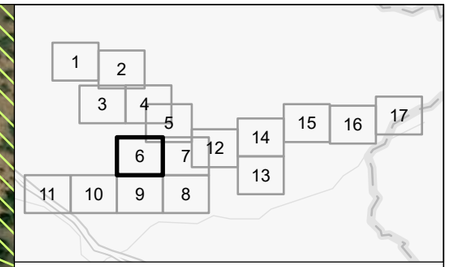
Stip Wind Farm North Macedonia

Project Overview - Stip 1
Sheet 5 of 17

Drawn	GIS Checked	Checked	Approved
K Vahakuopus	**J Poole**	**J Poole**	**R Griffiths**
Scale at A3	Status	Revision	Security
1:5,000	**INF**	**01**	**STD**

Project Overview - Stip 1

0 100 200 300 400 m



Redline boundary

Project components

- Stip 1 wind turbine
- Service road
- Internal road
- Overhead line
- Cranepad
- Foundation
- Platform
- Substation and car park

Existing infrastructure

- Existing OHL

Habitat type

- Helleno-Balkanic [Satureja montana] steppe
- Eastern Quercus pubescens wood

Coordinate system: GCS WGS 1984; Datum: WGS 1984

Data sources: Project components and existing infrastructure: Alcazar Energy, 2025; Habitat: Created by Mott MacDonald from combination of survey data (Maneko, 2025) and © ESA WorldCover project / Contains modified Copernicus Sentinel data (2021) processed by ESA WorldCover consortium.
Background mapping: Vantor, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Mott MacDonald
10 Fleet Place
London, EC4M 7RB
United Kingdom
T +44 (0)20 7651 0300
W mottmac.com

ALCAZAR ENERGY

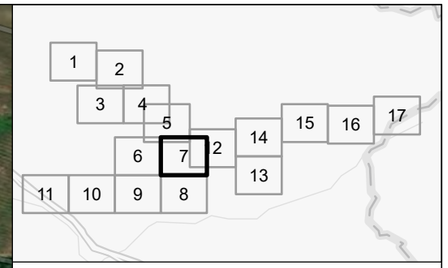
Stip Wind Farm North Macedonia

Project Overview - Stip 1
Sheet 6 of 17

Drawn	GIS Checked	Checked	Approved
K Vahakuopus	**J Poole**	**J Poole**	**R Griffiths**
Scale at A3	Status	Revision	Security
1:5,000	**INF**	**01**	**STD**

Project Overview - Stip 1

0 100 200 300 400 m



- Redline boundary

Project components

- Stip 1 wind turbine
- Service road
- Internal road
- Overhead line
- Cranepad
- Foundation
- Platform
- Substation and car park

Existing infrastructure

- Existing OHL

Habitat type

- Helleno-Balkanic [Satureja montana] steppe
- Eastern Quercus pubescens wood

Coordinate system: GCS WGS 1984; Datum: WGS 1984

Data sources: Project components and existing infrastructure: Alcazar Energy, 2025; Habitat: Created by Mott MacDonald from combination of survey data (Maneko, 2025) and © ESA WorldCover project / Contains modified Copernicus Sentinel data (2021) processed by ESA WorldCover consortium.
Background mapping: Vantor, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

MOTT MACDONALD

Mott MacDonald
10 Fleet Place
London, EC4M 7RB
United Kingdom
T +44 (0)20 7651 0300
W mottmac.com

ALCAZAR ENERGY

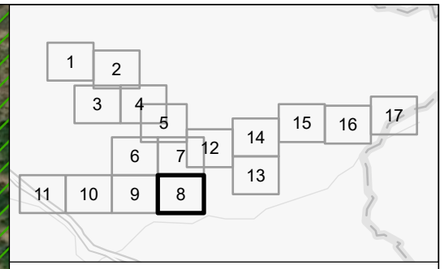
Stip Wind Farm North Macedonia

Project Overview - Stip 1
Sheet 7 of 17

Drawn	GIS Checked	Checked	Approved
K Vahakuopus	**J Poole**	**J Poole**	**R Griffiths**
Scale at A3	Status	Revision	Security
1:5,000	**INF**	**01**	**STD**

Project Overview - Stip 1

0 100 200 300 400 m



Redline boundary

Project components

- Stip 1 wind turbine
- Service road
- Internal road
- Overhead line
- Cranepad
- Foundation
- Platform
- Substation and car park

Existing infrastructure

- Existing OHL

Habitat type

- Helleno-Balkanic [Satureja montana] steppe
- Eastern Quercus pubescens wood

Coordinate system: GCS WGS 1984; Datum: WGS 1984

Data sources: Project components and existing infrastructure: Alcazar Energy, 2025; Habitat: Created by Mott MacDonald from combination of survey data (Maneko, 2025) and © ESA WorldCover project / Contains modified Copernicus Sentinel data (2021) processed by ESA WorldCover consortium.
Background mapping: Vantor, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Mott MacDonald
10 Fleet Place
London, EC4M 7RB
United Kingdom
T +44 (0)20 7651 0300
W mottmac.com

ALCAZAR ENERGY

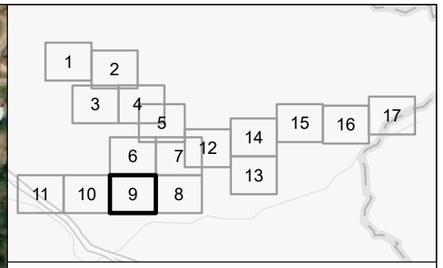
Stip Wind Farm North Macedonia

Project Overview - Stip 1
Sheet 8 of 17

Drawn	GIS Checked	Checked	Approved
K Vahakuopus	**J Poole**	**J Poole**	**R Griffiths**
Scale at A3	Status	Revision	Security
1:5,000	**INF**	**01**	**STD**

0 100 200 300 400 m

Project Overview - Stip 1



- Redline boundary

Project components

- Stip 1 wind turbine
- Service road
- Internal road
- Overhead line
- Cranepad
- Foundation
- Platform
- Substation and car park

Existing infrastructure

- Existing OHL

Habitat type

- Helleno-Balkanic [Satureja montana] steppe
- Eastern Quercus pubescens wood

Coordinate system: GCS WGS 1984; Datum: WGS 1984

Data sources: Project components and existing infrastructure: Alcazar Energy, 2025; Habitat: Created by Mott MacDonald from combination of survey data (Maneko, 2025) and © ESA WorldCover project / Contains modified Copernicus Sentinel data (2021) processed by ESA WorldCover consortium.
Background mapping: Vantor, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

MOTT MACDONALD

Mott MacDonald
10 Fleet Place
London, EC4M 7RB
United Kingdom
T +44 (0)20 7651 0300
W mottmac.com

ALCAZAR ENERGY

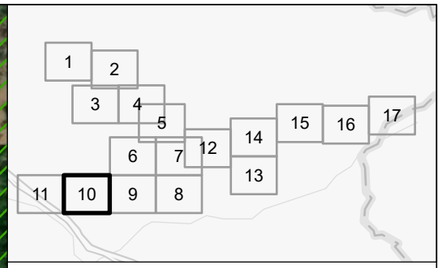
Stip Wind Farm North Macedonia

Project Overview - Stip 1
Sheet 9 of 17

Drawn	GIS Checked	Checked	Approved
K Vahakuopus	**J Poole**	**J Poole**	**R Griffiths**
Scale at A3	Status	Revision	Security
1:5,000	**INF**	**01**	**STD**

0 100 200 300 400 m

Project Overview - Stip 1



- Redline boundary

Project components

- Stip 1 wind turbine
- Service road
- Internal road
- Overhead line
- Cranepad
- Foundation
- Platform
- Substation and car park

Existing infrastructure

- Existing OHL

Habitat type

- Helleno-Balkanic [Satureja montana] steppe
- Eastern Quercus pubescens wood

Coordinate system: GCS WGS 1984; Datum: WGS 1984

Data sources: Project components and existing infrastructure: Alcazar Energy, 2025; Habitat: Created by Mott MacDonald from combination of survey data (Maneko, 2025) and © ESA WorldCover project / Contains modified Copernicus Sentinel data (2021) processed by ESA WorldCover consortium.
Background mapping: Vantor, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Mott MacDonald
10 Fleet Place
London, EC4M 7RB
United Kingdom
T +44 (0)20 7651 0300
W mottmac.com

ALCAZAR ENERGY

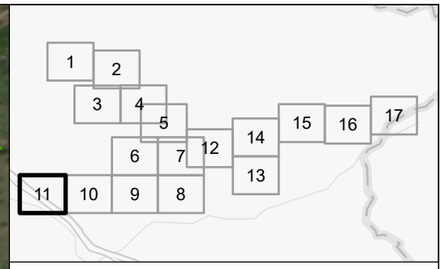
Stip Wind Farm North Macedonia

Project Overview - Stip 1
Sheet 10 of 17

Drawn	GIS Checked	Checked	Approved
K Vahakuopus	**J Poole**	**J Poole**	**R Griffiths**
Scale at A3	Status	Revision	Security
1:5,000	**INF**	**01**	**STD**

Project Overview - Stip 1

0 100 200 300 400 m



Redline boundary

Project components

- Stip 1 wind turbine
- Service road
- Internal road
- Overhead line
- Cranepad
- Foundation
- Platform
- Substation and car park

Existing infrastructure

- Existing OHL

Habitat type

- Helleno-Balkanic [Satureja montana] steppe
- Eastern Quercus pubescens wood

Coordinate system: GCS WGS 1984; Datum: WGS 1984

Data sources: Project components and existing infrastructure: Alcazar Energy, 2025; Habitat: Created by Mott MacDonald from combination of survey data (Maneko, 2025) and © ESA WorldCover project / Contains modified Copernicus Sentinel data (2021) processed by ESA WorldCover consortium.
Background mapping: Vantor, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Mott MacDonald
10 Fleet Place
London, EC4M 7RB
United Kingdom
T +44 (0)20 7651 0300
W mottmac.com

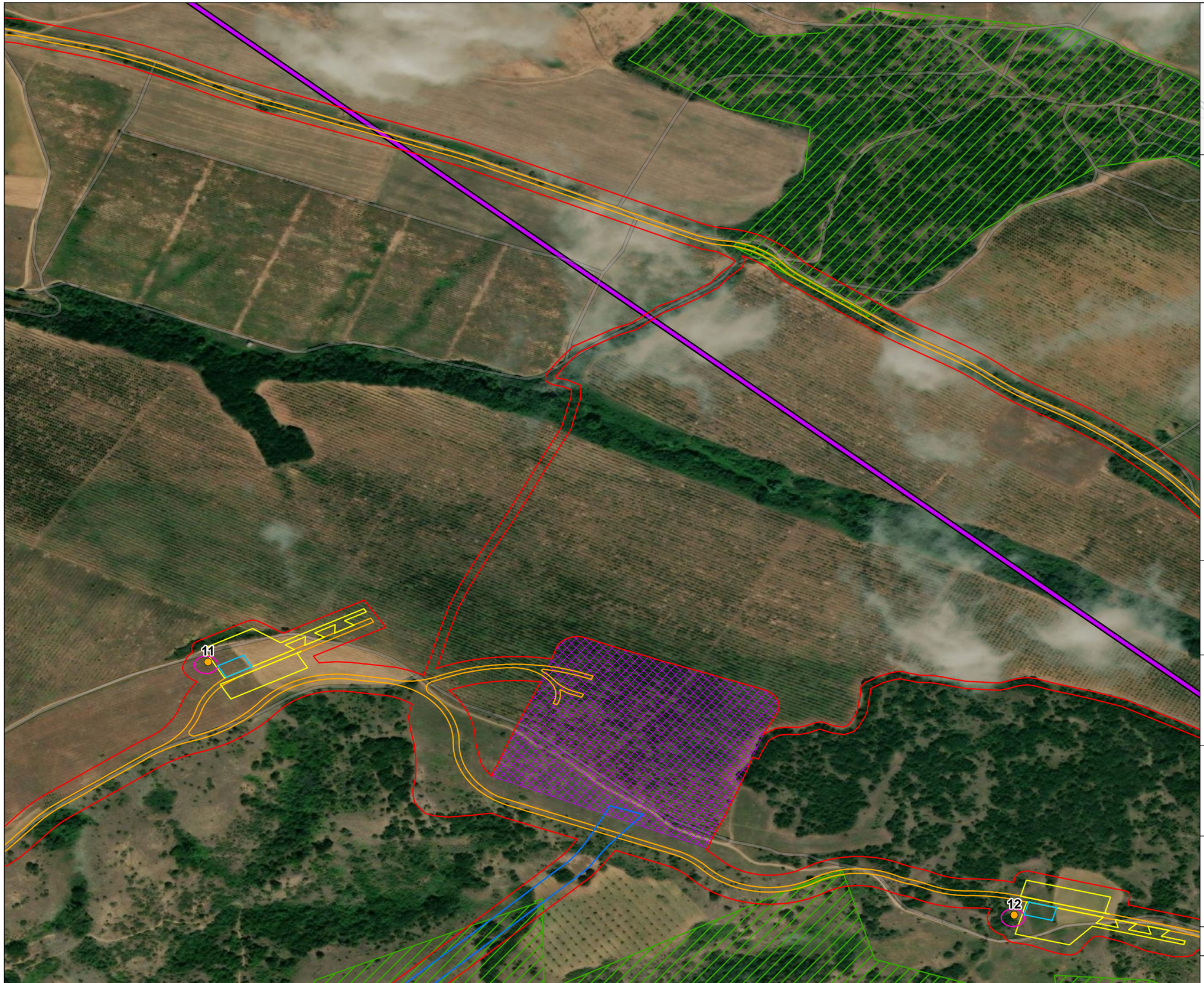
Stip Wind Farm North Macedonia

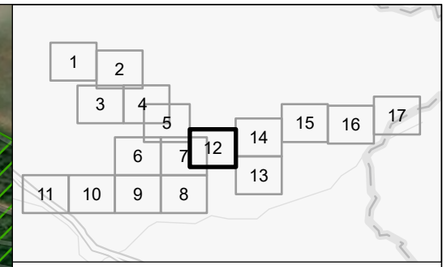
Project Overview - Stip 1
Sheet 11 of 17

Drawn	GIS Checked	Checked	Approved
K Vahakuopus	**J Poole**	**J Poole**	**R Griffiths**
Scale at A3	Status	Revision	Security
1:5,000	**INF**	**01**	**STD**

0 100 200 300 400 m

Project Overview - Stip 1





Redline boundary

Project components

- Stip 1 wind turbine
- Service road
- Internal road
- Overhead line
- Cranepad
- Foundation
- Platform
- Substation and car park

Existing infrastructure

- Existing OHL

Habitat type

- Helleno-Balkanic [Satureja montana] steppe
- Eastern Quercus pubescens wood

Coordinate system: GCS WGS 1984; Datum: WGS 1984

Data sources: Project components and existing infrastructure: Alcazar Energy, 2025; Habitat: Created by Mott MacDonald from combination of survey data (Maneko, 2025) and © ESA WorldCover project / Contains modified Copernicus Sentinel data (2021) processed by ESA WorldCover consortium.
Background mapping: Vantor, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Mott MacDonald
10 Fleet Place
London, EC4M 7RB
United Kingdom
T +44 (0)20 7651 0300
W mottmac.com

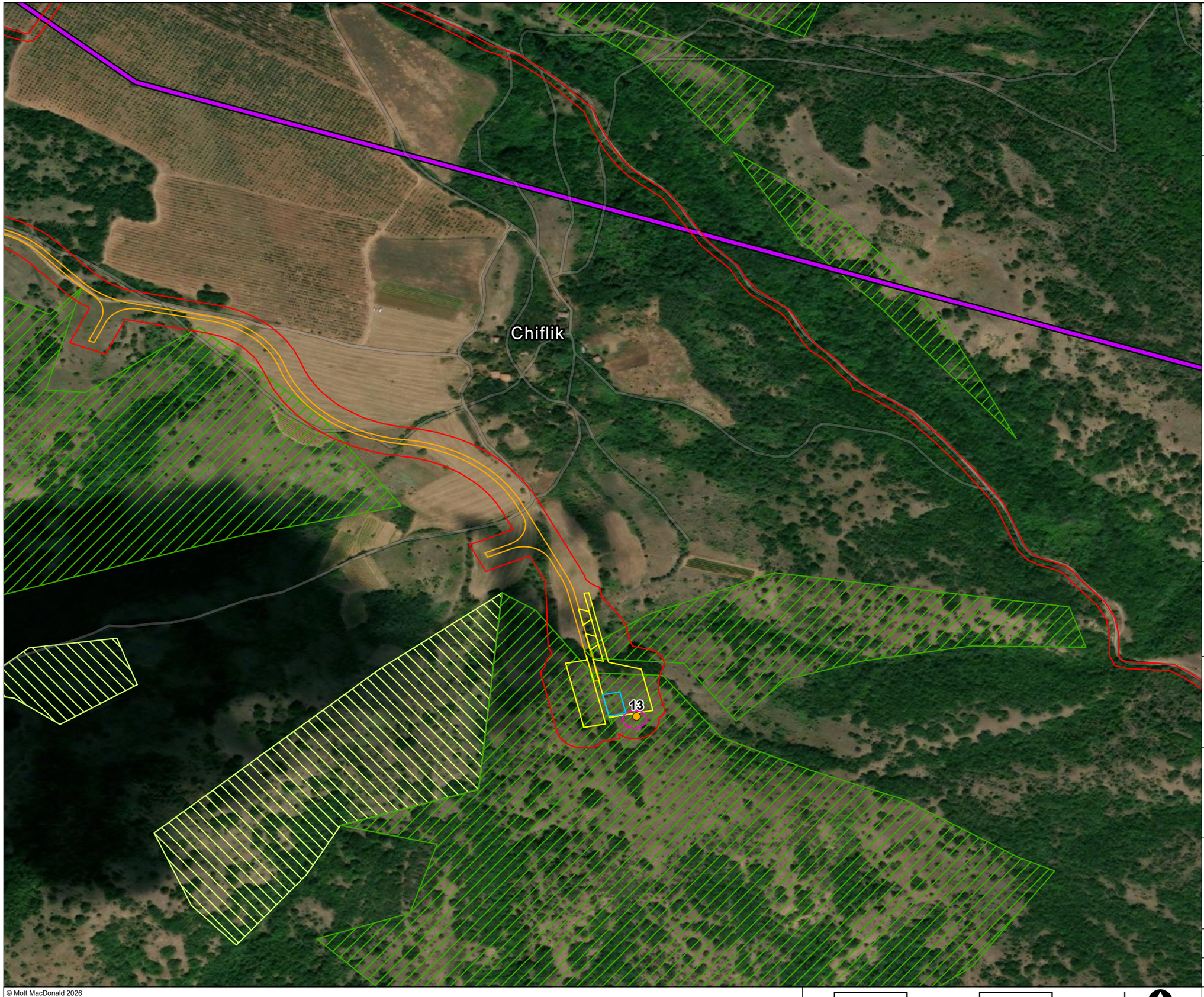
Stip Wind Farm North Macedonia

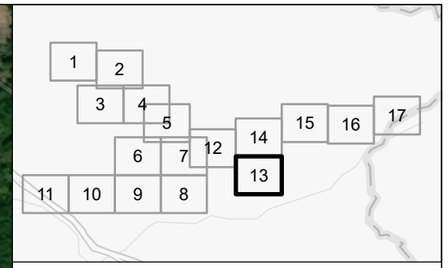
Project Overview - Stip 1
Sheet 12 of 17

Drawn	GIS Checked	Checked	Approved
K Vahakuopus	**J Poole**	**J Poole**	**R Griffiths**
Scale at A3	Status	Revision	Security
1:5,000	**INF**	**01**	**STD**

Project Overview - Stip 1

0 100 200 300 400 m





Redline boundary

Project components

- Stip 1 wind turbine
- Service road
- Internal road
- Overhead line
- Cranepad
- Foundation
- Platform
- Substation and car park

Existing infrastructure

- Existing OHL

Habitat type

- Helleno-Balkanic [Satureja montana] steppe
- Eastern Quercus pubescens wood

Coordinate system: GCS WGS 1984; Datum: WGS 1984

Data sources: Project components and existing infrastructure: Alcazar Energy, 2025; Habitat: Created by Mott MacDonald from combination of survey data (Maneko, 2025) and © ESA WorldCover project / Contains modified Copernicus Sentinel data (2021) processed by ESA WorldCover consortium.
Background mapping: Vantor, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Mott MacDonald
10 Fleet Place
London, EC4M 7RB
United Kingdom
T +44 (0)20 7651 0300
W mottmac.com

ALCAZAR ENERGY

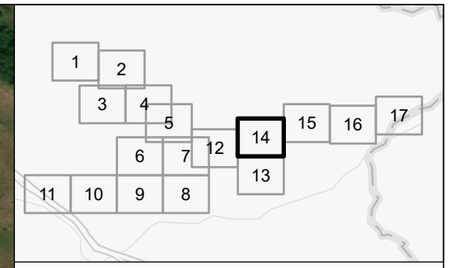
Stip Wind Farm North Macedonia

Project Overview - Stip 1
Sheet 13 of 17

Drawn	GIS Checked	Checked	Approved
K Vahakuopus	**J Poole**	**J Poole**	**R Griffiths**
Scale at A3	Status	Revision	Security
1:5,000	**INF**	**01**	**STD**

0 100 200 300 400 m

Project Overview - Stip 1



Redline boundary

Project components

- Stip 1 wind turbine
- Service road
- Internal road
- Overhead line
- Cranepad
- Foundation
- Platform
- Substation and car park

Existing infrastructure

- Existing OHL

Habitat type

- Helleno-Balkanic [Satureja montana] steppe
- Eastern Quercus pubescens wood

Coordinate system: GCS WGS 1984; Datum: WGS 1984

Data sources: Project components and existing infrastructure: Alcazar Energy, 2025; Habitat: Created by Mott MacDonald from combination of survey data (Maneko, 2025) and © ESA WorldCover project / Contains modified Copernicus Sentinel data (2021) processed by ESA WorldCover consortium.
Background mapping: Vantor, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

MOTT MACDONALD

Mott MacDonald
10 Fleet Place
London, EC4M 7RB
United Kingdom
T +44 (0)20 7651 0300
W mottmac.com

ALCAZAR ENERGY

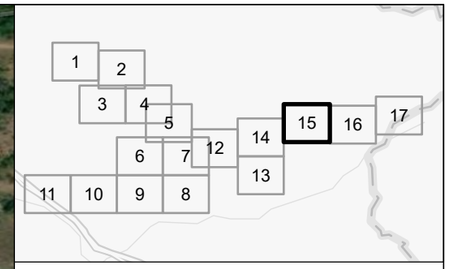
Stip Wind Farm North Macedonia

Project Overview - Stip 1
Sheet 14 of 17

Drawn	GIS Checked	Checked	Approved
K Vahakuopus	**J Poole**	**J Poole**	**R Griffiths**
Scale at A3	Status	Revision	Security
1:5,000	**INF**	**01**	**STD**

0 100 200 300 400 m

Project Overview - Stip 1



Redline boundary

Project components

- Stip 1 wind turbine
- Service road
- Internal road
- Overhead line
- Cranepad
- Foundation
- Platform
- Substation and car park

Existing infrastructure

- Existing OHL

Habitat type

- Helleno-Balkanic [Satureja montana] steppe
- Eastern Quercus pubescens wood

Coordinate system: GCS WGS 1984; Datum: WGS 1984

Data sources: Project components and existing infrastructure: Alcazar Energy, 2025; Habitat: Created by Mott MacDonald from combination of survey data (Maneko, 2025) and © ESA WorldCover project / Contains modified Copernicus Sentinel data (2021) processed by ESA WorldCover consortium.
Background mapping: Vantor, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Mott MacDonald
10 Fleet Place
London, EC4M 7RB
United Kingdom
T +44 (0)20 7651 0300
W mottmac.com

ALCAZAR ENERGY

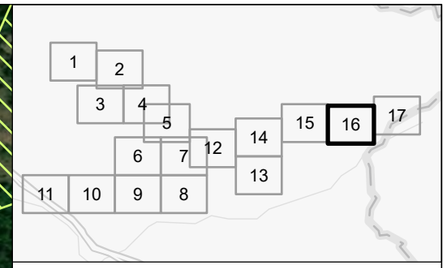
Stip Wind Farm North Macedonia

Project Overview - Stip 1
Sheet 15 of 17

Drawn	GIS Checked	Checked	Approved
K Vahakuopus	J Poole	J Poole	R Griffiths
Scale at A3	Status	Revision	Security
1:5,000	INF	01	STD

0 100 200 300 400 m

Project Overview - Stip 1



Redline boundary

Project components

- Stip 1 wind turbine
- Service road
- Internal road
- Overhead line
- Cranepad
- Foundation
- Platform
- Substation and car park

Existing infrastructure

- Existing OHL

Habitat type

- Helleno-Balkanic [Satureja montana] steppe
- Eastern Quercus pubescens wood

Coordinate system: GCS WGS 1984; Datum: WGS 1984

Data sources: Project components and existing infrastructure: Alcazar Energy, 2025; Habitat: Created by Mott MacDonald from combination of survey data (Maneko, 2025) and © ESA WorldCover project / Contains modified Copernicus Sentinel data (2021) processed by ESA WorldCover consortium.
Background mapping: Vantor, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Mott MacDonald
10 Fleet Place
London, EC4M 7RB
United Kingdom
T +44 (0)20 7651 0300
W mottmac.com

ALCAZAR ENERGY

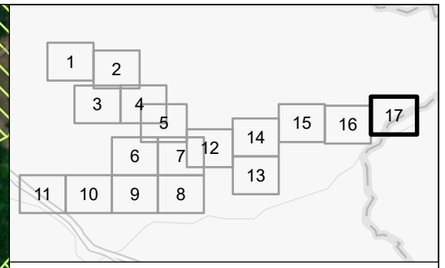
Stip Wind Farm North Macedonia

Project Overview - Stip 1
Sheet 16 of 17

Drawn	GIS Checked	Checked	Approved
K Vahakuopus	**J Poole**	**J Poole**	**R Griffiths**
Scale at A3	Status	Revision	Security
1:5,000	**INF**	**01**	**STD**

0 100 200 300 400 m

Project Overview - Stip 1



Redline boundary

Project components

- Stip 1 wind turbine
- Service road
- Internal road
- Overhead line
- Cranepad
- Foundation
- Platform
- Substation and car park

Existing infrastructure

- Existing OHL

Habitat type

- Helleno-Balkanic [Satureja montana] steppe
- Eastern Quercus pubescens wood

Coordinate system: GCS WGS 1984; Datum: WGS 1984

Data sources: Project components and existing infrastructure: Alcazar Energy, 2025; Habitat: Created by Mott MacDonald from combination of survey data (Maneko, 2025) and © ESA WorldCover project / Contains modified Copernicus Sentinel data (2021) processed by ESA WorldCover consortium.
Background mapping: Vantor, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Mott MacDonald
10 Fleet Place
London, EC4M 7RB
United Kingdom
T +44 (0)20 7651 0300
W mottmac.com

ALCAZAR ENERGY

Stip Wind Farm North Macedonia

Project Overview - Stip 1
Sheet 17 of 17

Drawn	GIS Checked	Checked	Approved
K Vahakuopus	**J Poole**	**J Poole**	**R Griffiths**
Scale at A3	Status	Revision	Security
1:5,000	**INF**	**01**	**STD**

0 100 200 300 400 m

Project Overview - Stip 1

B. Critical Habitat and Priority Biodiversity Features

A Critical Habitat Assessment (CHA) has been developed based on the baseline information presented in the ESIA Chapter 8 (Biodiversity) in accordance with IFC PS6 (IFC, 2019), EBRD ESR6 (EBRD, 2025) and EIB ESS4 (EIB, 2022) and Priority Biodiversity Features according to EBRD (EBRD, 2025). The CHA is presented in the ESIA and a summary of the results as relevant to this BMP are presented below.

The Project's Ecologically Appropriate Areas of Analysis (EAAAs) meet the requirements of Critical Habitat in accordance with IFC, EBRD and EIB due to the presence of Annex I 'priority habitat' listed under EU Habitats Directive (Eastern white oak woods) and in accordance with EIB due to the presence of nine species (four reptiles and five bats) listed under Annex II and Annex IV of the Habitats Directive.

The Project also meets the thresholds for 80 PBFs under EBRD ESR6 Criteria 1 and 3 supporting threatened species and migratory bird species, regularly occurring within the EAAA. Table B.1 presents a summary of which lender requirements are triggered by Critical Habitat/ PBF. The full list of species meeting Critical Habitat and PBF thresholds are presented in Table B.2.

Table B.1: Critical Habitat and Priority Biodiversity Features

Criterion	IFC PS6 Critical Habitat Thresholds	EBRD ESR6 Critical Habitat Thresholds	EBRD PBF Thresholds	EIB Critical Habitat definitions
Internationally recognised and legally protected areas	Not Critical Habitat	Not Critical Habitat	N/A	Not Critical Habitat
1. Threatened species: IUCN Critically Endangered (CR) or Endangered (EN) Species, EU protected species	Not Critical Habitat	Not Critical Habitat	**PBF present** - See Table B.2:	**Critical Habitat** Annex II and Annex IV Habitats Directive recorded in the AoI: -Four-lined Snake -European ratsnake - Greek Tortoise / Spur-thighed Tortoise - Hermann's Tortoise -Barbastelle bat -Schreiber's bent-winged bat -Geoffroy's bat -Greater mouse-eared bat -Lesser horseshoe bat
2. Endemic or Restricted-Range	Not Critical Habitat	Not Critical Habitat	No PBF	Not Critical Habitat

Criterion	IFC PS6 Critical Habitat Thresholds	EBRD ESR6 Critical Habitat Thresholds	EBRD PBF Thresholds	EIB Critical Habitat definitions
(<100,000 km²) Species				
3. Migratory or Congregatory Species	Not Critical Habitat	Not Critical Habitat	**PBF present** - See Table B.2:	Not Critical Habitat
4. Unique or Threatened Ecosystems	**Critical Habitat** Annex I priority habitat recorded in the AoI: - Eastern white oak woods	**Critical Habitat** Annex I priority habitat recorded in the AoI: - Eastern white oak woods	**PBF present** Annex I habitat recorded in the AoI: - Helleno-Balkanic [Satureja montana] steppes - Intermittently flowing Mediterranean rivers of the Paspalo-Agrostidion[7]	**Critical Habitat** Annex I priority habitat recorded in the AoI: - Eastern white oak woods
5. Key Evolutionary Processes	Not Critical Habitat	Not Critical Habitat	No PBF	Not Critical Habitat
6. Social, economic or cultural importance	N/A	N/A	N/A	Not Critical Habitat

Source: Mott MacDonald, 2026.

Table B.2: Critical Habitat and Priority Biodiversity Features under EBRD

Class and Scientific name	Common name	IUCN Status	Movement pattern	EU Habitats Directive	EU Birds Directive	CH	PBF	Criteria
Mammalia								
Barbastella barbastellus	Barbastelle Bat	NT		II, IV		Yes	Yes	1
Miniopterus schreibersii	Schreiber's Bent-winged Bat	VU	Full Migrant	II, IV		Yes	Yes	1 and 3
Myotis emarginatus	Geoffroy's Bat	LC		II, IV		Yes	Yes	1
Myotis myotis	Greater Mouse-eared Bat	LC	Full Migrant	II, IV		Yes	Yes	1 and 3
Nyctalus leisleri	Leisler's Bat	LC	Full Migrant	IV			Yes	3
Nyctalus noctula	Common Noctule	LC	Full Migrant	IV			Yes	3
Pipistrellus nathusii	Nathusius' Pipistrelle	LC	Full Migrant	IV			Yes	3
Vespertilio murinus	Parti-coloured Bat	LC	Full Migrant	IV			Yes	3
Rhinolophus hipposideros	Lesser Horseshoe Bat	LC		II, IV		Yes	Yes	1

[7] There will be no loss or impact to Intermittently flowing Mediterranean rivers of the Paspalo-Agrostidion due to the project

Class and Scientific name	Common name	IUCN Status	Movement pattern	EU Habitats Directive	EU Birds Directive	CH	PBF	Criteria
Eptesicus serotinus	Serotine	LC	Full Migrant	IV			Yes	3
Pipistrellus pipistrellus	Common Pipistrelle	LC	Full Migrant	IV			Yes	3
Aves								
Neophron percnopterus	Egyptian vulture	EN	Full migrant		I		Yes	1 and 3
Alectoris graeca	Rock partridge	NT			I and IIB		Yes	1
Anthus campestris	Tawny pipit	LC	Full Migrant		I		Yes	1 and 3
Anthus pratensis	Meadow pipit	LC	Full Migrant				Yes	3
Anthus spinoletta	Water pipit	LC	Full Migrant				Yes	3
Anthus trivialis	Tree pipit	LC	Full Migrant				Yes	3
Apus pallidus	Pallid swift	LC	Full Migrant				Yes	3
Aquila heliaca	Eastern imperial eagle	VU	Full Migrant		I		Yes	1 and 3
Burhinus oedicnemus	Eurasian Thick-knee	LC			I		Yes	1
Buteo rufinus	Long-legged buzzard	LC	Full Migrant		I		Yes	1 and 3
Calandrella brachydactyla	Greater short-toed lark	LC	Full Migrant		I		Yes	1 and 3
Caprimulgus europaeus	Nightjar	LC	Full Migrant		I		Yes	1 and 3
Carduelis spinus	Eurasian siskin	LC	Full Migrant				Yes	3
Cecropis rufula	Red-rumped swallow	LC	Full Migrant				Yes	3
Circaetus gallicus	Short-toed snake eagle	LC	Full Migrant		I		Yes	1 and 3
Circus aeruginosus	Western marsh harrier	LC	Full Migrant		I		Yes	1 and 3
Circus cyaneus	Hen harrier	LC	Full Migrant		I		Yes	1 and 3
Circus pygargus	Montagu's harrier	LC	Full Migrant		I		Yes	1 and 3
Columba oenas	Stock dove	LC	Full Migrant				Yes	3
Columba palumbus	Woodpigeon	LC	Full Migrant		II and III		Yes	3
Coracias garrulus	European roller	LC	Full Migrant				Yes	3
Cuculus canorus	Cuckoo	LC	Full Migrant				Yes	3
Curruca communis	Common whitethroat	LC	Full Migrant				Yes	3
Curruca crassirostris	Eastern orphean warbler	LC	Full Migrant				Yes	3

Class and Scientific name	Common name	IUCN Status	Movement pattern	EU Habitats Directive	EU Birds Directive	CH	PBF	Criteria
Curruca curruca	Lesser whitethroat	LC	Full Migrant				Yes	3
Curruca nisoria	Barred warbler	LC	Full Migrant				Yes	3
Delichon urbicum	House martin	LC	Full Migrant				Yes	3
Dryocopus martius	Black Woodpecker	LC			I		Yes	1
Emberiza melanocephala	Black-headed bunting	NE	Full Migrant	LC			Yes	3
Emberiza schoeniclus	Reed bunting	LC	Full Migrant				Yes	3
Falco naumanni	Lesser kestrel	LC	Full Migrant		I		Yes	1 and 3
Falco peregrinus	Peregrine	LC			I		Yes	1
Falco subbuteo	Hobby	LC	Full Migrant		I		Yes	1 and 3
Fringilla montifringilla	Brambling	LC	Full Migrant				Yes	3
Hieraaetus pennatus	Booted eagle	LC	Full Migrant		I		Yes	1 and 3
Hirundo rustica	Barn swallow	LC	Full Migrant				Yes	3
Lanius collurio	Red-backed shrike	LC	Full Migrant		I		Yes	1 and 3
Lanius excubitor	Great grey shrike	LC	Full Migrant				Yes	3
Lanius minor	Lesser grey shrike	LC	Full Migrant		I		Yes	1 and 3
Lanius nubicus	Masked shrike	LC	Full Migrant		I		Yes	1 and 3
Lanius senator	Woodchat Shrike	NT	Full Migrant				Yes	3
Lullula arborea	Woodlark	LC			I		Yes	1
Luscinia megarhynchos	Nightingale	LC	Full Migrant				Yes	3
Melanocorypha calandra	Calandra Lark	LC			I		Yes	1
Merops apiaster	Bee-eater	LC	Full Migrant				Yes	3
Muscicapa striata	Spotted flycatcher	LC	Full Migrant				Yes	3
Oenanthe oenanthe	Northern wheatear	LC	Full Migrant				Yes	3
Oriolus oriolus	Golden oriole	LC	Full Migrant				Yes	3
Otus scops	Scops owl	LC	Full Migrant				Yes	3
Pernis apivorus	European honey buzzard	LC	Full Migrant		I		Yes	1 and 3
Phoenicurus phoenicurus	Common redstart	LC	Full Migrant				Yes	3
Phylloscopus collybita	Common Chiffchaff	LC	Full Migrant				Yes	3

Class and Scientific name	Common name	IUCN Status	Movement pattern	EU Habitats Directive	EU Birds Directive	CH	PBF	Criteria
Phylloscopus trochilus	Willow Warbler	LC	Full Migrant				Yes	3
Regulus ignicapilla	Firecrest	LC	Full Migrant				Yes	3
Saxicola rubetra	Whinchat	LC	Full Migrant				Yes	3
Streptopelia turtur	European turtle dove	VU	Full Migrant				Yes	3
Sylvia atricapilla	Eurasian Blackcap	LC	Full Migrant				Yes	3
Sylvia borin	Garden warbler	LC	Full Migrant				Yes	3
Sylvia communis	Whitethroat	LC	Full Migrant				Yes	3
Turdus iliacus	Redwing	NT	Full Migrant		II		Yes	3
Turdus pilaris	Fieldfare	LC	Full Migrant		II		Yes	3
Upupa epops	Hoopoe	LC	Full Migrant				Yes	3
Amphibia								
Bombina variegata	Yellow-bellied Toad	LC	N/A	II			Yes	1
Salamandra salamandra	Common Fire Salamander	VU	N/A				Yes	1
Spinus spinus	Siskin	LC	Full Migrant				Yes	3
Reptilia								
Elaphe quatuorlineata	Four-lined Snake	LC	N/A	II and IV		Yes	Yes	1
Testudo graeca	Greek Tortoise / Spur-thighed Tortoise	VU (Europe)	N/A	II and IV		Yes	Yes	1
Testudo hermanni	Hermann's Tortoise	VU	N/A	II and IV		Yes	Yes	1
Zamenis situla	European ratsnake	LC	N/A	II and IV		Yes	Yes	1
Grand Total						**9**	**80**	

Source: Mott MacDonald, 2026

The outcomes of the CHA presented in this section form the ecological baseline against which all the measures and requirements in this BMP have been developed.

C. Vegetation Clearance Habitat Restoration and Invasive Species Management Plans

This plan sets out the measures for vegetation clearance, habitat restoration, and IAS management within the Project footprint. Based on the layout assessed in the ESIA, the total anticipated habitat loss is approximately 50.36 ha of temporary loss and 61.61 ha of permanent loss across all phases of development. The ESIA and CHA identified the following habitats of biodiversity importance that are anticipated to be affected by Project activities:

- Eastern white oak woods, considered Critical Habitat under IFC PS6, EBRD ESR6 and EIB ESS4 for Annex I 'priority' habitat

C.1 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*), considered a PBF under EBRD ESR6 as an Annex I Habitat Vegetation Clearance Plan

Mitigation measures for vegetation clearance have been designed to minimise habitat loss, avoid unnecessary disturbance to sensitive habitats, and ensure that impacts are accurately quantified to comply with permitting requirements and inform NNL and Net Gain commitments.

It is noted that management of the vegetation will also play a role in risk reduction for faunal species by making habitats less favourable for their presence.

Minimisation of Construction and Operational Footprint

Construction and operation areas will be confined to the smallest practicable footprint to reduce habitat loss, degradation, and fragmentation. Key measures:

- Site construction and working areas shall be on bare ground or previously disturbed / modified areas where feasible, avoiding ecologically sensitive habitats, i.e. oak woodlands and steppe grasslands.
- Prioritise the upgrade and use of existing access roads over the construction of new roads. Where new access routes are unavoidable, route them through areas of lower ecological value, avoiding woodland, steppe, and areas supporting rare species.
- Avoid, as far as possible, the placement of temporary construction features (e.g. laydown areas, stockpiles) and permanent infrastructure within or immediately adjacent to sensitive habitats, i.e. oak woodlands and steppe grasslands.
- To support compliance with above measures, clearly demarcate construction boundaries using temporary barriers, fencing, or markers to prevent footprint creep and unauthorised access, especially into sensitive habitats.
  - Areas which need particular attention due to the presence of sensitive habitat recorded during baseline surveys are: wind turbines 2, 9, 51, 52, 42, 43, 44 and 45, and some sites along transmission lines and access roads for steppe grassland; wind turbines 39, 40 and 41, and some sites along transmission lines and access roads for Eastern white oak woodland.
- Ensure that all temporary construction features (e.g. fencing, excavations, stockpiles) are fully removed upon completion of construction to facilitate natural recovery and maintain habitat connectivity.

Vegetation Clearance Methods and Controls

Clearance will be managed to minimise ecological disturbance and facilitate subsequent restoration. Vegetation clearance activities will be coordinated with timing restrictions and ecological constraints identified in the ESIA and BMP, including seasonal sensitivities for fauna. To align this with the limited windows available alongside the planned construction timeline, early clearance before seasonal restrictions (e.g. bird breeding season) begin should be considered on all sites where construction is planned in 2026 – these areas can then be managed to prevent regrowth (and use as habitat by fauna) before works commence. Key measures:

- Clearly mark the exact clearance areas on the ground prior to works, using appropriate flagging or marking materials.
  - Limit clearance to these areas and avoid accidental encroachment onto adjacent sensitive habitats through the installation of barrier fencing – particularly woodlands and steppe.
- Undertake clearance in a sequential and directional manner, encouraging fauna to move away from active clearance zones into adjacent suitable habitat without the need for direct human intervention, where possible.
  - Consider starting all pre-construction clearance in early 2026, before sensitive fauna periods e.g. bird breeding season, and subsequently sensitively managing such habitats to prevent regrowth. This will support fauna mitigation measures recommended in this BMP, while minimising delay to construction.
- Prohibit the burning or burial of cleared vegetation, whether in situ or stockpiled.
- Stockpile cleared vegetation, where appropriate, in a manner that allows for reuse in restoration, does not impede vehicle access, and does not obstruct livestock or wildlife movement.

Soil Management

Mitigation related to construction soils will focus on limiting disturbance and erosion, prioritising on-site reuse, minimising compaction, and preventing contamination. These measures also support IAS prevention by reducing soil movement and prolonged exposure of bare ground (see Section A.3). Measures will be implemented with reference to relevant guidance documents (CDER, 2023; Defra, 2009).

- Minimise soil disturbance and erosion and avoid pollution
  - Restrict soil stripping, excavation, and earthworks to approved construction footprint only.
  - Sequence works to limit the duration soils are left exposed, particularly on slopes and in areas subject to wind or water erosion.
  - Avoid soil disturbance during wet conditions where possible. This is to reduce rutting, compaction, and sediment runoff.
  - Install appropriate temporary erosion and sediment controls (e.g. bunds, silt fencing, cut-off drains) around excavations and soil stockpiles where required.
  - Store and handle all fuels, oils, and hazardous substances in accordance with the Project Environmental and Social Management Plan (ESMP) to prevent soil contamination. Spill response procedures will be implemented as required, including isolation and appropriate management of contaminated soils.
- Minimise soil compaction and restore where compacted
  - Restrict vehicle and machinery movements to designated routes and working areas and avoid repeated driving over stripped or stockpiled soils.

  - Where compaction occurs, soils will be ripped or loosened prior to reinstatement to restore permeability and support vegetation re-establishment.
  - Heavy machinery will be excluded from areas designated for restoration where possible.
- Apply appropriate measures for soil stripping, segregation and stockpiling
  - Soil stripping and storage strategies will be designed to preserve soil structure, organic content, and seed banks, supporting reuse in rehabilitation and habitat restoration (see Section A.3).
  - Stockpiles will be located away from drainage lines, watercourses, and sensitive habitats and managed to minimise erosion and facilitate inspection and invasive species management.
  - Where medium- to long-term stockpiling is required, stockpiles will be stabilised (e.g. seeded with a non-invasive, competitive grass cover or otherwise protected). Exposed stockpiles will be covered and protected using vegetation, mulch, or erosion-resistant / wind-proof materials as appropriate.
  - Drainage around stockpiles and excavations will be managed to prevent undercutting, slumping, or off-site sediment transport.
- Soil reuse and restoration
  - Reuse soil on-site wherever possible, prioritising reinstatement and restoration. This includes returning topsoil as close as possible to its original location (typically within 200 m), maintaining local soil characteristics and reducing the risk of invasive species spread.
  - Imported soils will be avoided unless strictly necessary and, where used, must be from a reputable source and certified free of IAS and contaminants.
  - Soil handling will be coordinated with habitat restoration measures to support native species establishment and minimise IAS risk (Section A.3).

Tree Inventory

A detailed inventory of all trees and habitats removed during construction will be implemented to accurately quantify construction-related biodiversity impacts. The inventory will be progressive and ongoing, aligned with the sequence of construction activities and clearance requirements.

The objectives of the tree inventory are to:

- Confirm the actual extent of habitat clearance;
- Meet national permitting and reporting requirements;
- Provide robust input data for NNL/NG accounting, restoration planning, and offsetting if required. This will be detailed in a BAP, as described in Section 4.2.

The inventory will be undertaken by a qualified Biodiversity Specialist, coordinated with the BOP Contractor, and integrated into the Project's environmental reporting framework. It should record the species of trees being removed and whether they are individual trees or within woodland habitats.

This work will be in addition to the regulatory required Tree Loss Inventory which will be conducted by the national authorities. The difference being that the national inventory will relate only to areas of State Forest land where tree loss occurs. The projects wider footprint may also result in additional tree loss.

Habitat Condition Score (EBM)

During the pre-construction surveys undertaken by the ECoW, the condition of woodland and grassland will be assessed according to the criteria set out in the EBM 1.0 Habitat Condition Assessment worksheet (2026).

C.2 Habitat Restoration Plan

This Plan sets out measures to reinstate and enhance natural habitats affected by temporary construction areas. The Project is required to deliver demonstrable NNL of the steppe habitat (Priority Biodiversity Feature) and Net Gain of the oak woodlands (Critical Habitat) subject to permanent loss, in accordance with IFC PS6, EBRD ESR6 and EIB ESS4. Predicted losses of PBF and critical habitats in each Project phase are:

- Phase 1
    - Eastern white oak woods: 3.63 ha in temporary project footprint, 2.58 ha in permanent project footprint
    - Semi-natural calcareous grasslands: 3.65 ha temporary project footprint, 2.23 ha permanent project footprint
- Phase 2
    - Eastern white oak woods: 4.01 ha temporary project footprint, 2.38 ha permanent project footprint
    - Semi-natural calcareous grasslands: 5.07 ha temporary project footprint, 3.44 ha permanent project footprint
- Phase 3
    - Eastern white oak woods: 2.94 ha temporary project footprint, 2.78 ha permanent project footprint
    - Semi-natural calcareous grasslands: 3.77 ha temporary project footprint, 2.24 ha permanent project footprint

Considering the generally degraded condition of woodland habitats within the Project area, and the relatively limited extent of permanent woodland loss, Net Gain will be achieved through targeted on-site enhancement of existing woodland areas within the Project boundary rather than through the creation of new offset sites. Improving the condition of existing woodland is expected to deliver more effective and greater likelihood of success biodiversity outcomes by increasing ecological functionality, resilience, and connectivity, while reducing the ecological risk and uncertainty associated with woodland creation (Forest Research, 2025).

As woodland is a slow-developing climax ecosystem, both losses in both the temporary and permanent project footprints require long-term management and recovery measures to achieve effective compensation. Accordingly, this Plan focuses on general restoration principles and the restoration of temporarily disturbed grassland habitats, with specific woodland enhancement measures to be addressed separately through woodland management commitments in the BAP.

Restoration of Temporarily Disturbed Areas

All temporarily disturbed areas within steppe grasslands habitats will be restored following construction. Restoration activities will be implemented in accordance with the Vegetation Clearance and Restoration Plan, with invasive species risk managed in line with the Invasive Species Management Plan.

Key general principles for all restoration:

- Soil handling and reinstatement will be undertaken in accordance with the Vegetation Clearance Plan, including soil stripping, segregation, storage, reinstatement, and erosion control. This includes returning and using topsoil in the same general area of the site where it was originally removed, allowing natural regeneration where possible;
- Vegetation reinstatement will prioritise natural regeneration where feasible, supported by active restoration where required, using native species compatible with local soil and climatic conditions;

  - For calcareous grassland and oak woodland refer to specific measures below
  - For agricultural land, restoration will be limited to soil reinstatement and basic landscaping to reinstate pre-construction conditions, with no additional habitat enhancement.
- Restoration timing will align with seasonal conditions favouring native vegetation establishment and minimise invasive species risk, as per the IAS Management Plan;
- Temporary fencing or access controls will be installed where required to prevent livestock grazing or disturbance during early recovery, in accordance with site-specific restoration requirements.

In addition to the general restoration principles above, the following habitat-specific measures for the restoration and enhancement of semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) have been identified from GIIP and the *EU Habitat Action Plan for Dry Grasslands* and should be applied (European Commission, 2019):

- Reuse and reinstate soil on-site as much as possible and prevent nutrient loading.
  - Do not apply fertilisers, compost, manure, or soil amendments.
  - Remove cut vegetation.
  - Avoid practices that increase soil fertility or favour fast-growing competitive species.
- Allow natural regeneration as the default approach where intact calcareous grassland occurs within the immediate surrounding area (within 200m). Monitor to assess for IAS presence regularly (C.4) and regeneration success after the first growing season; where characteristic calcareous grassland species are absent or sparse, or ruderal and IAS are establishing, implement active restoration as below.
- Apply active direct seeding using native species characteristic of *Festuco-Brometalia* communities and compatible with local soil chemistry.
  - Use low-nutrient, low-density seed mixes and avoid dominant agricultural grasses.
  - Where possible seed should be collected from existing grassland within or near the Project area at the end of the summer period and used for restoration and enhancement.
    - Consider establishing a local nursery to propagate plants from local provenance seed, including existing grassland habitats in the Project area, to support longer term enhancement of degraded habitats as part of NNL / NG measures.
    - If seed collection is not feasible, use seed of local or regional provenance; do not use non-native or commercially improved cultivars.
  - Complete reseeding as soon as practicable following reinstatement and within the first suitable planting season.
  - If grazing pressure is high in the area, install fencing while vegetation establishes.
- To avoid succession into scrub and woodland habitat, prevent establishment of woody vegetation within restored grassland areas. This can be achieved through a sustainable grazing or cutting plan for the area, to be detailed in the BAP.
  - Remove scrub, tree saplings, and tall ruderal species where cover exceeds approximately 10–15%. Undertake scrub control using selective cutting or hand removal, avoiding soil disturbance.
  - Where grazing is feasible, introduce low-intensity grazing once vegetation is established to maintain open sward structure.
  - Where grazing is not feasible, undertake annual cutting in late summer or early autumn and remove arisings from site. Avoid cutting during peak flowering and seed-set periods of target grassland species.

Woodland-specific enhancement measures to deliver Net Gain will be detailed in the Project BAP. These measures will focus on improving woodland condition through targeted management interventions and will be informed by the criteria in the habitat condition assessments of the European Biodiversity Metric. Net Gain will be demonstrated through measurable improvements in condition scores over time, enabling compliance with lender requirements for Critical Habitat and long-term biodiversity outcomes. GIIP and relevant literature will be referred to for woodland management measures (e.g. Harmer et al, 2010; Veres et al, 2025).

Monitoring and Adaptive Management (Construction and Operation)

Restoration and enhancement measures will be subject to monitoring and adaptive management to confirm effectiveness and ensure delivery of NNL/NG commitments.

- Restored and reinstated habitats will be monitored during construction and for a minimum of two growing seasons post-construction, or longer where required to demonstrate recovery of steppe grassland structure and species composition.
- Monitoring will focus on:
    - Vegetation cover and stability;
    - Presence and establishment of characteristic *Festuco-Brometalia* species;
    - Evidence of soil erosion or compaction;
    - Encroachment by scrub, tree and ruderal species, or IAS.
- Monitoring will be undertaken by the ECoW or Biodiversity Specialist, in coordination with other biodiversity monitoring required under the Project BMEP.
- Results will be reviewed annually. Where restoration is not effectively establishing, adaptive management measures will be implemented, which may include:
    - Additional seeding or overseeding with appropriate native species;
    - Targeted scrub or ruderal species removal;
    - Adjustments to grazing or cutting regimes;
    - Extension of fencing or access controls.
- Any IAS recorded during monitoring will be managed in accordance with the Invasive Species Management Plan (C.4).
- Monitoring outcomes and any adaptive management actions will be documented and reported as part of Project environmental reporting and lender compliance.

Roles and Responsibilities

- Alcazar Energy Partners: overall responsibility for implementation of the Habitat Restoration Plan and compliance with Lender commitments.
- BOP Contractor: implement restoration measures during construction, including coordination with soil reinstatement and access controls.
- ECoW / Biodiversity Specialist:
    - Oversight of restoration implementation;
    - Monitoring habitat recovery and restoration performance;
    - Advising on adaptive management measures where required;
    - Reporting restoration outcomes and compliance.
- Operations Team: implement ongoing management measures during operation (e.g. cutting, grazing coordination, scrub control) where required to maintain restored habitats.
- All site personnel: comply with site controls relevant to restored areas, including access restrictions, biosecurity measures, and protection of reinstated habitats.

C.3 Transmission Line Woodland Management

Insufficient information is available to determine exact habitat loss under the transmission line. However, vegetation will be kept at a maximum height of 8 m in these areas. It is worth noting that the maintenance of the transmission line will be financed and built by AEP but transferred to MEPSo for operation. Therefore, AEP will ensure measures and requirements relating to maintenance are appropriately transferred. MEPSo will also receive the land easements, entailing land and vegetation/woodland management.

In areas of calcareous steppe grassland, habitats should be maintained or enhanced, following relevant measures in Section C.2 above. However, woodlands under the transmission lines will be managed as permanently height-restricted habitats which will not be restorable to closed-canopy woodland. Measures should therefore focus on maintaining a diverse low-canopy woodland and scrub mosaic that maximises biodiversity value within the operational safety constraints. Key measures:

- Retain and promote native shrubs and small trees characteristic of the Eastern white oak woodland habitat (e.g. *Acer campestre*, *Crataegus*, *Cornus*, *Prunus*, *Corylus*). Avoid species with rapid vertical growth that would require frequent cutting, but existing oak may be retained and regeneration allowed as coppice or pollard.

- Where feasible within operational safety constraints, clearance and maintenance should be undertaken on a multi-year rotation with coppicing of suitable species and phased management for continued habitat connectivity, rather than whole-corridor clearance in a single season.

- Transmission line corridor areas should be prioritised for IAS monitoring and early intervention in line with C.4, as repeated disturbance and increased light availability caused by the need for height-restricted corridors increases the risk of IAS pathways. Introducing an effective coppicing regime would decrease the risk of IAS introduction.

C.4 Invasive Species Management Plan

IAS are species occurring outside their natural range that have the potential to spread rapidly and negatively affect native biodiversity and ecosystem services. IAS are recognised as a significant driver of biodiversity loss globally.

Baseline surveys did not identify the presence of IAS within the Project AoI. However, construction activities present a potential pathway for IAS introduction and Macedonia's National Biodiversity Strategy and Action Plan (NBSAP) identifies invasive species as a key pressure, listing 46 invasive plant species occurring nationally.

In line with IFC PS6 and EBRD ESR6, the Project will not intentionally introduce non-native species and will implement measures to minimise the risk of accidental introduction and spread of IAS. This IAS Plan is linked to soil management controls set out in Section A.2. It provides a preventative approach to IAS management, which addresses the following pathways for introduction:

- Movement of contaminated soil, aggregates, and construction materials;
- Vehicles and machinery moving between sites;
- Disturbed and temporarily bare ground;
- Restoration and offsetting activities.

Prevention Measures (Pre-construction and Construction)

Pre-construction Surveys

- During the tree inventory (to be undertaken during the construction phase but prior to construction activities commencing) and other pre-construction checks, any IAS identified will be documented by a suitably qualified ecologist.
- Where relevant, this will inform site-specific controls and be included in contractor method statements.

Vehicle, Machinery and Materials Hygiene

- All vehicles, machinery, and equipment entering the site must be cleaned prior to arrival on-site. Cleaning should remove soil, plant material, and debris, with particular attention to tyres, tracks, undercarriages, and attachments involved in breaking ground.
- Designated wash-down areas will be established on-site where required.
- Construction materials (including soil, aggregates, and fill) must be sourced from reputable suppliers and, where practicable, accompanied by confirmation that they are free from invasive species propagules.

Training and Awareness

- Relevant staff receive IAS awareness training prior to works commencing.
- Training will include:
  - Identification of any IAS recorded during pre-construction surveys and common invasive species recorded nationally / regionally (including *Ailanthus altissima*, *Ambrosia artemisiifolia*, *Robinia pseudoacacia*, *Sorghum halepense*, which are listed in the NBSAP);
  - Reporting procedures;
  - Biosecurity requirements and site rules.

Soil and Vegetation Management Controls

Soil disturbance is a key pathway for IAS establishment. IAS prevention will be supported through implementation of the Soil Management measures set out in Section A.2, including:

- Limiting soil disturbance and vegetation clearance to approved footprints;
- Preventing erosion and runoff;
- Appropriate stripping, storage, protection, and reinstatement of topsoil;
- Avoidance of prolonged storage of bare soil;
- Isolation and appropriate disposal of any soil or vegetation suspected of IAS contamination, in line with national requirements and, where applicable, EU Regulation 1143/2014.

Habitat Restoration and Reinstatement

Restoration activities will be designed to reduce the risk of IAS establishment and support recovery of native plant communities, with the following key measures:

- Use native species only for restoration and offsetting if required;
- Preference for locally sourced seed or plant material to reduce biosecurity risk;
- Avoid fertilisers or enriched soils that can favour opportunistic invasive species at the expense of native species;
- Time any active restoration measures during periods that favour native vegetation establishment rather than IAS, e.g. as soon as possible following clearance to minimise the duration of bare or exposed ground; early spring, when moisture availability supports native species establishment and reduces stress on seedlings;

- Avoid excessive compaction during reinstatement works;
- Do not use restoration techniques that create disturbed conditions conducive to IAS colonisation.

Monitoring and Adaptive Management (Construction and Operation)

- Disturbed and restored areas will be monitored regularly during construction and for a minimum of two years post-construction, or longer within restoration areas as per BAP requirements.
- Monitoring will be undertaken by the ECoW or Biodiversity Specialist, alongside other biodiversity monitoring detailed in this BMP. Any IAS observed by other personnel should also be reported.
- IAS records will include: species observed (if any), extent of presence, location, photograph.
- Monitoring results will be reported as detailed in the BMEP and required for Lender compliance.
- The number of confirmed IAS occurrences detected during monitoring will be used as the overall KPI, with a target of no established IAS populations within the Project footprint and restoration sites.

If IAS are detected, the ECoW / Biodiversity Specialist will be notified immediately. The extent and risk will be assessed, and appropriate control measures implemented (e.g. manual removal, targeted treatment, or containment, subject to regulatory approval where required) and subsequent monitoring will confirm the effectiveness of control actions.

A further response may be triggered if IAS pose a risk to CH/PBFs and restoration sites.

Roles and Responsibilities

- Client: Overall responsibility for compliance.
- BOP Contractor: Implementation of prevention and control measures.
- Ecological Clerk of Works: Supervision, monitoring, reporting, and adaptive management.
- All Contractors and Staff: Compliance with site biosecurity requirements.

D. Fauna Protection and Relocation Plan

This Appendix presents the Fauna Protection and Relocation Plan for the construction phase of the Project. It provides the framework for avoiding, minimising and managing risks to Priority Biodiversity Features (PBFs) and other fauna that may be encountered during construction activities, and supports the commitments set out in the BMP.

The measures described in this Appendix are designed to address the primary impact pathways associated with construction, including vegetation removal, ground disturbance, excavation, traffic movements, and temporary habitat alteration. This Appendix should be read in conjunction with the BMP table in Chapter 3 of this Plan and Appendix C (Vegetation Clearance, Restoration and Invasive Species Management), which together define the project's approach to biodiversity risk management during construction.

D.1 Critical Habitat and Priority Biodiversity Features

This section presents the terrestrial fauna species triggering Critical Habitat and Priority Biodiversity Features potentially at risk as identified during the ESIA. The results of this study suggest there are four species that require efforts to achieve NNL in the case of PBFs, and two species (four-lined snake and European ratsnake) that require Net Gain.

Table D.1Table B.2: Critical Habitat and Priority Biodiversity Features under EBRD summarises the findings of PBF and CH under EBRD resulting from the ESIA. Five species have been found to meet PBF thresholds, and four meet CH thresholds under EIB criteria.

Table D.1: Terrestrial fauna Critical Habitat and Priority Biodiversity Features under EBRD

Class and Scientific name	Common name	IUCN Status	CH	PBF	Requirement
Amphibia					
Bombina variegata	Yellow-bellied Toad	LC	No	Yes	NNL
Salamandra salamandra	Common Fire Salamander	VU	No	Yes	NNL
Reptilia					
Testudo graeca	Greek Tortoise / Spur-thighed Tortoise	VU (Europe)	Yes	Yes	NNL
Testudo hermanni	Hermann's Tortoise	VU	Yes	Yes	NNL
Elaphe quatuorlineata	Four-lined Snake	LC	Yes	Yes	Net Gain
Zamenis situla	European ratsnake	LC	Yes	No	Net Gain
Total*			**2**	**5**	

Source: Mott MacDonald, 2026.
* Please note, bats are not included in this section – this focuses solely on terrestrial fauna.

D.2 Seasonal Biodiversity Risk and Adaptive Management

Critical Habitat and Priority Biodiversity Feature reptiles and amphibians within the Project area exhibit marked seasonal variation in activity, detectability, and vulnerability, including periods of hibernation, breeding, nesting, egg-laying, and juvenile development. Construction-related risks therefore vary throughout the year.

Seasonal risk ratings used in this BMP represent overall construction interaction risk, considering the likelihood of encounters, the spatial extent of works, and the practical ability to

detect and manage fauna, rather than biological sensitivity alone. These ratings are used to scale mitigation and ecological supervision and do not represent fixed construction exclusion periods.

D.2.1 Seasonal biodiversity risk matrix and calendar

The Seasonal Biodiversity Risk Matrix (Table D.2) provides an indicative assessment of relative construction-related risk (High, Medium, Low) for key faunal receptor groups by season.

Spring is identified as a higher risk period for tortoises and other reptiles due to increased surface activity, movement, and nesting behaviour, which results in frequent and unpredictable interactions with construction activities such as clearance and traffic.

Winter risk is driven primarily by excavation-related impacts on hibernating individuals. While encounter frequency may be lower during hibernation, animals are immobile and concealed within soil or refugia, and the consequences of uncontrolled excavation can be severe. Winter risk is therefore managed through enhanced excavation controls rather than construction prohibitions.

Note: Elevated winter risk ratings explicitly reflect excavation activities including turbine foundation excavation, cable trenching, and road widening. Specific excavation-related mitigation measures are provided in the BMP table and detailed further in Appendix C.

Table D.2: Seasonal Biodiversity Risk Matrix

Receptor Group	Winter	Spring	Summer	Autumn
Hermann's & Spur-thighed tortoises	Medium	High	Medium	Medium
Four-lined snake	Low	High	Medium	Low–Medium
European ratsnake	Low	High	Medium	Low–Medium
Yellow-bellied toad	Low	High	High	Medium
Common fire salamander	Medium	High	Medium	High
Other fauna	Low–Medium	Medium	Medium	Medium

Monthly Ecological Sensitivity

Table D.3 presents an indicative overview of the monthly ecological sensitivity of Priority Biodiversity Features, based on species-specific life-cycle stages including hibernation, above-ground activity, breeding, and mating periods.

This monthly sensitivity information provides ecological context for the seasonal risk interpretation by identifying periods when construction activities are more likely to interact with fauna and result in disturbance, injury, or mortality if not appropriately managed.

Importantly, the monthly sensitivity profiles do not represent construction exclusion periods. Instead, they provide ecological context for understanding why certain seasons are assigned higher overall construction risk ratings and why enhanced mitigation and ecological supervision are required during specific periods.

The seasonal risk matrix (Table D.2) synthesises the monthly species-specific sensitivity information presented in Table D.3 into broader seasonal risk categories (Low, Medium, High), reflecting overall construction interaction risk rather than individual life-cycle stages. This approach supports adaptive management and avoids the need for prescriptive construction timing restrictions, while ensuring that mitigation measures are scaled appropriately to ecological risk.

Table D.3: Ecological sensitivity to the project's construction phase for each PBF feature by calendar month.

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Yellow-bellied Toad												
Common Fire Salamander												
Greek Tortoise/Spur-thighed Tortoise												
Hermann's Tortoise												
Four-lined Snake												
European ratsnake												

Source: Mott MacDonald, 2026.
Green – (potential) breeding/mating period
Orange – above-ground activity period
Blue – hibernation/winter dormancy period

D.3 Managing Vegetation Removal

Vegetation removal and management in areas that are designated for construction activities (platform locations and substation location) will be managed as early as possible to dissuade local fauna from utilising the areas ahead of construction. A sequence of steps for managing the vegetation removal and its impacts to terrestrial fauna are set out below. These are presented in relation to the species-specific requirements and are complementary to those measures set out in Appendix C.

D.3.1 Step 1 – Pre-construction checks

Pre-construction check for each turbine to identify high-risk areas for tortoises, salamanders, snakes and yellow-bellied frog (see details below). Timing: tortoises (March–October active season), salamander (peak spring–summer). However, the latter may be present throughout the year.

Both snakes exhibit similar and strong seasonal cycles given their tendency towards dormancy in winter and active season during warmer months (Elmberg *et al.*, 2024). They tend towards field edges, vineyards, stone walls, woodland edges and open woodland.

The common fire salamander is associated with habitats found within the AoI, including coniferous forests with well shaded brooks and small rivers. In suitable weather conditions, this species can mate throughout the year. However, the larvae are deposited in waterbodies mainly at nighttime, and more often in spring or summer. In general, the female gives birth to well-developed larvae, that complete metamorphosis in streams, ponds and still waters. Therefore, access to waterbodies is essential to this species' life cycle.in addition, this species has been known to hibernate in aquatic environments (Zając, 2022).

Both tortoises exhibit similar and strong seasonal cycles given their temperate-zone characteristics. Given their location in areas subject to cold winters, they tend to exhibit a

seasonal dormancy typical of Mediterranean tortoises. Access to undisturbed terrestrial habitat is therefore essential for nesting, foraging, and overwintering (IUCN, 2026).

The yellow-bellied toad has a reproductive period from May to early August in Europe (Rita Di Cerbo and Biancardi, 2004). During the baseline surveys, temporary pools were identified during the May and June surveys, suggesting these months are the most appropriate on-site for breeding of this species. According to the IUCN, the main threats to this species from activities at the project include road construction, pesticide use and potential hunting for pet trade and as fishing bait. This species could be found in coniferous forests, meadows and grasslands on-site.

D.3.2 Step 2 – Reptile exclusion fencing

Install reptile exclusion fencing along the interface between the construction footprint and adjacent suitable reptile habitat (i.e., only where species could move into the works area), avoiding fencing of the wider habitat.Timing: Prior to vegetation clearance; optimal time March-September when species are most active/sensitive.

D.3.3 Step 3 – Pre-vegetation clearance checks

Pre-vegetation clearance check by ECoW and local relocation to safe side of exclusion fence. Timing: in areas considered low risk and no exclusion fencing is required; same day checks can be undertaken if these are conducted in suitable weather conditions. Where exclusion fencing is being used, a different protocol will be applied, including up to 14 days of searching to ensure no further fauna is found. Species-specific activity windows will be considered (broadly March-September).

D.3.4 Step 4 – ECoW supervision during vegetation clearance

ECoW supervision during vegetation clearance (turbines and access roads) will be present to ensure fauna are allowed to move away on their own or are moved over exclusion fencing as required. Timing: Daily during clearance; avoid peak amphibian and reptile breeding (March–August).

D.4 Managing Risk of Fatalities from Excavation Works

An ECoW will be present during topsoil removal (for details see Section 3 and Appendix C). The topsoil utilised should be set aside, preserved in its natural state and used to backfill once excavation works have been finalised. An ECoW will also inspect excavations daily to ensure no fauna are trapped, and escape ramps will be installed where required.

D.5 Managing Potential Road Kill Events

Road kill events can cause impacts on terrestrial fauna during the construction phase. To mitigate such impacts, a speed limit of $\leqslant$30 km/h will be implemented on-site during the construction phase. In addition, signage warning of the presence of fauna susceptible to runovers will be erected, and staff will be trained and made aware to minimise mortality. This training will include general measures such as introducing speed limits, risk of runovers, dangers of vegetation clearance and excavations, as well as highlighting key PBF species to consider.

D.6 Awareness Programme for Construction Staff

Staff on-site will be made aware of the presence of PBF features and general measures to protect them. This will include identifying what key species look like (provide access to ID guide and post on boards on-site), explaining reporting procedure and whom to contact upon

encountering fauna and include this information on boards and prohibiting hunting or collection of fauna on-site.

A ban on hunting, persecution (such as killing of stigmatised species like snakes), and collection of wildlife, and a ban on keeping free-roaming domestic cats and dogs will be enacted and enforced.

D.7 Fauna Exclusion and Escape Measures

Fauna exclusion and escape procedures are essential to preventing injury or mortality of terrestrial fauna during construction. Exclusion fencing will be installed around all active construction areas located in high-risk areas (near habitats known to host PBF species and burrows, etc.) including turbine platforms, widened access roads, overhead line pylon locations, the substation. Fencing will be designed to prevent ingress of ground-dwelling reptiles and amphibians, with the lower edge securely buried to avoid burrowing underneath and the upper edge angled outward to prevent climbing.

Daily inspections of the fencing in these high-risk areas will be undertaken by the ECoW to ensure integrity, identify damage, and confirm that no animals have become trapped along the fence line. Any breaches must be repaired immediately to maintain effectiveness. Where any excavation pits, trenches or cable ducts remain open throughout the construction site (i.e. not exclusive to high-risk areas), suitable fauna escape measures must be implemented. These include escape ramps at appropriate intervals and the covering of open excavations overnight wherever feasible. The ECoW will check all excavations each morning and evening to confirm that no fauna are present and will safely remove any individuals found.

Exclusion and escape measures must remain in place for the duration of construction activities and only be removed once the risk to fauna has ceased and the Biodiversity Specialist has confirmed that it is appropriate to decommission them.

D.8 Relocation Methodology

Relocation is applied only when avoidance is not feasible and where individuals of PBF species would otherwise be placed at risk. North Macedonia requires a licenced professional/practitioner to undertake such activities. Therefore, such a professional will undertake any relocation and handling methods required during construction.

D.8.1 Target species

The species most likely to require relocation within the site include:

- **Tortoises** (*Testudo graeca* and *T. hermanni*)
- **Snakes**, including the four-lined snake (*Elaphe quatuorlineata*) and other locally occurring, non-venomous species
- **Amphibians**, primarily the yellow-bellied toad (*Bombina variegata*) and common fire salamander (*Salamandra salamandra*).

These species have specific habitat and moisture requirements that will guide receptor site selection. However, given the local scale of the predicted works, only local relocation is predicted. Therefore, appropriate, similar habitats to those in which terrestrial fauna are encountered will be used to translocate them. Should these be encountered near the exclusion fence and relocation is required, these will be moved to the correct side of the exclusion fence.

D.8.2 Capture methods

Individuals will be captured by a qualified Biodiversity Specialist or trained ecological personnel. Tortoises will be captured by hand following systematic ground searches. Snakes will be captured using snake hooks or by hand where safe to do so. Amphibians will be collected using hand nets or by gently lifting ground cover such as leaf litter, logs and stones. All captures will be undertaken during appropriate temperature and weather conditions (assessed by the Biodiversity Specialist) to minimise stress.

Once captured, if necessary, fauna will be placed in ventilated containers suitable for short-term holding. Animals will be transported to pre-identified receptor sites that provide suitable habitat, shelter and foraging opportunities, at a safe distance from construction areas and consistent with natural movement ranges. Wherever possible, these will be selected locally and near the original encounter location.

D.9 Permitting and Animal Welfare

All handling and translocation of protected species must comply with national and European wildlife legislation, as well as lender requirements. This may include species-specific or site-specific licences.

Animal welfare is a primary consideration throughout the process. Handling will follow methods informed by good practice and, where needed, local expertise will be sought from organisations who can provide additional guidance on safe handling, appropriate container types and species-specific stress minimisation techniques. Animals will be kept for the minimum time required, sheltered from direct sunlight and extreme temperatures, and transported promptly to receptor sites.

Where any signs of injury, illness or excessive stress are observed, the Biodiversity Specialist will determine whether veterinary support is required or if alternative mitigation measures must be implemented.

D.10 Post-translocation Checks and Reporting

Monitoring following release is critical to confirm that individuals have adapted to the receptor environment. Initial checks will take place within 24–48 hours after translocation to confirm that animals are utilising available refuges and have not attempted to return toward the construction area. These early inspections will also assess habitat suitability, moisture availability and presence of predators.

Further monitoring will continue during the first weeks following release. Observations will focus on confirming survival, movement behaviour and any emerging risks at receptor sites. Seasonal monitoring will be carried out over the first year to assess medium-term settlement, particularly after overwintering for reptile and amphibian species.

A formal Post-translocation Report will be prepared summarising the number of individuals handled, locations of capture and release, condition assessments, monitoring results and any corrective actions. This report will be submitted to all relevant stakeholders as part of wider biodiversity compliance reporting.

D.11 Construction Phase Monitoring

Monitoring during construction ensures that fauna protection measures remain effective and that unanticipated risks are identified promptly. The ECoW will carry out daily checks of exclusion fencing, excavations and construction areas to ensure that no animals have become trapped and that all installed measures are functioning as intended. Weekly site-wide walkovers will identify new risks arising from evolving site conditions, such as puddling after rain or changes in vegetation that may attract fauna.

Rainfall events will trigger additional targeted inspections near construction activities, as amphibians may be drawn to temporary waterbodies or damp soils created during earthworks. Any individuals encountered will be relocated to a safe refuge or receptor site as appropriate. Monitoring will also occur prior to the initiation of work in new areas and following the completion of construction activities to ensure that no fauna remain within temporary works zones.

All monitoring observations will be logged and integrated into the project's biodiversity database, ensuring that any emerging trends or issues can be identified quickly and managed through adaptive measures where necessary.

E. Bird and Bat Protection and Mitigation

E.1 Overview of Bird and Bat Risks

Details of identified impacts and mitigation strategies are provided in Chapter 8 of the ESIA. CHA prepared for the Project details CH and PBF designations against relevant standards and guidelines and establishes links between the designated species and associated impacts and mitigation measures (Table E.1) According to EBRD ESR6 No Net Loss (NNL) needs to be achieved for PBF bird and bat species, and five bat species require Net Gain (NG) under EIB criteria.

For bird and bat species, key issues and impacts during construction are habitat loss and fragmentation, destruction of nest sites, disturbance from noise, vibration, and artificial lighting, displacement, barrier effects (temporary fencing, road widening), and hydrological changes. Roost loss was not identified as an issue for bat species since the baseline did not identify roost sites within the project AoI. Disturbance to foraging and commuting activity of bat species is evaluated as low and temporary during construction.

For birds and bats, construction impacts are considered either minor or moderate adverse pre-mitigation, and mostly minor adverse post-mitigation. Overarching mitigation measures are outlined in the ESIA and CHA and include pre-construction checks, timing works outside sensitive seasons, managing dust, noise and lighting to control disturbance, installation and ongoing maintenance of bird diverters. Adherence to the general measures included in the ESIA and CHA therefore can ensure effective mitigation with some additional considerations needed mainly for raptor movement and breeding during construction phase.

Operation phase impacts are primarily collision along with disturbance, barrier effects with possible habituation, while electrocution is expected to be insignificant due to pylon design and configuration. Since all bat species present in this region are small-bodied, electrocution risks are generally much lower for bat species as with small-bodied bird species. Section 5 of this BMP will provide a high-level framework for operation phase bird and bat management to be refined through development of the Operational Management Plan.

Table E.1: Bird and Bat Critical Habitat and Priority Biodiversity Features under IFC, EBRD, EIB

Class and Scientific name	Common name	IUCN Status	CH	PBF	Requirement
Bat					
Barbastella barbastellus	Barbastelle Bat	NT	Yes	Yes	NG
Miniopterus schreibersii	Schreiber's Bent-winged Bat	VU	Yes	Yes	NG
Myotis emarginatus	Geoffroy's Bat	LC	Yes	Yes	NG
Myotis myotis	Greater Mouse-eared Bat	LC	Yes	Yes	NG
Nyctalus leisleri	Leisler's Bat	LC		Yes	NNL
Nyctalus noctula	Common Noctule	LC		Yes	NNL
Pipistrellus nathusii	Nathusius' Pipistrelle	LC		Yes	NNL
Vespertilio murinus	Parti-coloured Bat	LC		Yes	NNL
Rhinolophus hipposideros	Lesser Horseshoe Bat	LC	Yes	Yes	NG
Eptesicus serotinus	Serotine	LC		Yes	NNL
Pipistrellus pipistrellus	Common Pipistrelle	LC		Yes	NNL
Bird					

Class and Scientific name	Common name	IUCN Status	CH	PBF	Requirement
Alectoris graeca	Rock partridge	NT		Yes	NNL
Anthus campestris	Tawny pipit	LC		Yes	NNL
Anthus pratensis	Meadow pipit	LC		Yes	NNL
Anthus spinoletta	Water pipit	LC		Yes	NNL
Anthus trivialis	Tree pipit	LC		Yes	NNL
Apus pallidus	Pallid swift	LC		Yes	NNL
Aquila heliaca	Eastern Imperial Eagle	VU		Yes	NNL
Burhinus oedicnemus	Eurasian Thick-knee	LC		Yes	NNL
Buteo rufinus	Long-legged buzzard	LC		Yes	NNL
Calandrella brachydactyla	Greater short-toed lark	LC		Yes	NNL
Caprimulgus europaeus	Nightjar	LC		Yes	NNL
Carduelis spinus	Eurasian siskin	LC		Yes	NNL
Cecropis rufula	Red-rumped swallow	LC		Yes	NNL
Circaetus gallicus	Short-toed snake eagle	LC		Yes	NNL
Circus aeruginosus	Western marsh harrier	LC		Yes	NNL
Circus cyaneus	Hen harrier	LC		Yes	NNL
Circus pygargus	Montagu's harrier	LC		Yes	NNL
Columba oenas	Stock dove	LC		Yes	NNL
Columba palumbus	Woodpigeon	LC		Yes	NNL
Coracias garrulus	European roller	LC		Yes	NNL
Cuculus canorus	Cuckoo	LC		Yes	NNL
Curruca communis	Common whitethroat	LC		Yes	NNL
Curruca crassirostris	Eastern orphean warbler	LC		Yes	NNL
Curruca curruca	Lesser whitethroat	LC		Yes	NNL
Curruca nisoria	Barred warbler	LC		Yes	NNL
Delichon urbicum	House martin	LC		Yes	NNL
Dryocopus martius	Black Woodpecker	LC		Yes	NNL
Emberiza melanocephala	Black-headed bunting	NE		Yes	NNL
Emberiza schoeniclus	Reed bunting	LC		Yes	NNL
Falco naumanni	Lesser kestrel	LC		Yes	NNL
Falco peregrinus	Peregrine	LC		Yes	NNL
Falco subbuteo	Hobby	LC		Yes	NNL
Fringilla montifringilla	Brambling	LC		Yes	NNL
Hieraaetus pennatus	Booted eagle	LC		Yes	NNL
Hirundo rustica	Barn swallow	LC		Yes	NNL
Lanius collurio	Red-backed shrike	LC		Yes	NNL
Lanius excubitor	Great grey shrike	LC		Yes	NNL
Lanius minor	Lesser grey shrike	LC		Yes	NNL
Lanius nubicus	Masked shrike	LC		Yes	NNL
Lanius senator	Woodchat Shrike	NT		Yes	NNL
Lullula arborea	Woodlark	LC		Yes	NNL
Luscinia megarhynchos	Nightingale	LC		Yes	NNL
Melanocorypha calandra	Calandra Lark	LC		Yes	NNL
Merops apiaster	Bee-eater	LC		Yes	NNL
Muscicapa striata	Spotted flycatcher	LC		Yes	NNL

Class and Scientific name	Common name	IUCN Status	CH	PBF	Requirement
Oenanthe oenanthe	Northern wheatear	LC		Yes	NNL
Oriolus oriolus	Golden oriole	LC		Yes	NNL
Otus scops	Scops owl	LC		Yes	NNL
Pernis apivorus	European honey buzzard	LC		Yes	NNL
Phoenicurus phoenicurus	Common redstart	LC		Yes	NNL
Phylloscopus collybita	Common Chiffchaff	LC		Yes	NNL
Phylloscopus trochilus	Willow Warbler	LC		Yes	NNL
Regulus ignicapilla	Firecrest	LC		Yes	NNL
Saxicola rubetra	Whinchat	LC		Yes	NNL
Streptopelia turtur	European turtle dove	VU		Yes	NNL
Sylvia atricapilla	Eurasian Blackcap	LC		Yes	NNL
Sylvia borin	Garden warbler	LC		Yes	NNL
Sylvia communis	Whitethroat	LC		Yes	NNL
Turdus iliacus	Redwing	NT		Yes	NNL
Turdus pilaris	Fieldfare	LC		Yes	NNL
Upupa epops	Hoopoe	LC		Yes	NNL

Avoidance measures include:

- Designating access routes to avoid sensitive habitats
- Limiting construction vehicle movement
- Using low noise machinery
- Avoiding unnecessary revving of engines
- Switching equipment off when not in use
- Avoid nighttime work (which is expected to be strongly localised (e.g. specific WTGs during concrete pouring or WTG erection completed with continuous work until erection so crane can be demobilised at the earliest)
- Avoid tree felling and vegetation clearance outside construction boundary
- Implement exclusion zones and fencing to protect habitats
- Avoid creation of temporary roads, parking lots and storage areas outside of the established project area to prevent footprint creep
- Prohibit off-road driving.

Minimisation measures are essential during construction and include,

- Scheduling activities to avoid sensitive periods (e.g. breeding or migration seasons) if possible and implementing pre-work checks when not.
- Installing bird flight diverters for raptors (e.g. Eastern Imperial Eagle) along the 7km transmission line, within the ground cables at alternating positions between both ground cables to minimise risk of collision/ electrocution.
  - Though flight diverters address operation phase impacts, the measure (diverters) needs implementing during construction, while ongoing maintenance of diverters is expected during operation phase.

E.2 Sensitive Periods and Timing Restrictions

Due to the high number of birds and bats which are considered CH/PBF, there are multiple sensitive time windows that overlap during construction period. For the region of the Project these seasons for birds are,

- Spring migration (Early March through late May);
- Early breeding (April through early May);
- Late breeding (Early May through mid-June);
- Raptor juvenile fledging and dispersal (as late as July-early August);
- Autumn migration (Mid-August through late October).

For bats in Southern Europe, spring migration generally peaks around May and autumn migration around late August. The period when nightly temperatures consistently stay below 10 degrees Celsius comprise wintering and hibernation periods.

While harm due to ground disturbance for full migrants is less of a concern as they will be present for a short time and while in transit, the primary impact receptor subject to timing restrictions is considered **breeding bird** species.

- Key times to **avoid ground disturbance** (vegetation removal, soil stripping and excavation, blasting) to avoid impact to small and medium bodied breeding bird species is from **March to mid-June** (Phase 1) and for raptors includes **February** (Phases 2, 3).

The primary impact for timing restrictions is artificial lighting, and receptor is considered **migratory bird** species due to the outsized impact artificial light can impose on migrants by dazing and confusing them during a period of high stress, resulting in injury or mortality.

- Key times to **avoid of night work** which will result in light pollution at night, and general nighttime is **during spring and autumn migration seasons**.

For **bat** species, disturbance to foraging and feeding is unavoidable but temporary. Restriction of construction works to daytime and avoidance of scheduling nighttime work is one of the most effective mitigation measures.

An adverse impact subject to timing restrictions during construction is due to ground disturbance or vibration disturbance during hibernation. Bat baseline covered winter season and did not identify any structures for roosting, which significantly reduces this risk.

- However, based on heightened Schreiber's Bent-winged Bat activity recorded through October, it is possible that a wintering population is using a well-hidden, undiscovered small cave or crevice, which is possible due to the terrain of the Project.
- Key time to avoid physical, noise and vibration impact to potential underground structures (vegetation removal, soil stripping and excavation, blasting) from November through March.

Winter months are generally unfavourable in the region for construction activities, however not every activity is affected the same from adverse weather. When weather permits, ground preparation works are sometimes scheduled to prepare the area for installation prior to spring when weather becomes favourable for installation work. If winter ground preparation works need to be scheduled, especially around hilly parts and/or involve blasting, sufficient pre-work checks need to be implemented.

Table E.2: Risk from the project's construction phase for each group by calendar month.

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Bats												

Large raptors												
Small raptors												
Other breeding bird												
Migratory bird												

Source: Mott MacDonald, 2026.

Green – (potential) breeding/mating period

Orange –active period

Blue – hibernation/winter dormancy period

Purple – migration period

E.3 Managing Construction Phase Bird Risks

Habitat manipulation should be implemented during winter months to make the environment unappealing to breeding birds by early breeding period, redirecting breeding activities away from construction areas thereby reducing impact to breeding species.

- The approach is detailed in Appendix C “Vegetation Clearance Habitat Restoration and Invasive Species Management Plans”.
- For Phase 1, birds using the scrubland and ground nesting species are in focus (measures to be implemented before March)
- For later phases (2, 3) raptors come into focus as tree felling will be undertaken (measures to be implemented before February).

Pre-construction checks to be conducted at pads, roads and along the OHL (especially where pylons will be placed) from February-June to ensure no harm to any remaining breeding birds, if any.

- Nests of any small – medium bodied species have low success rates following translocation due to parental abandonment, so, if possible and though not ideal, nests with eggs / hatchlings should be marked off (ideally a buffer of 10-30m) and left alone if construction can proceed around it.
- If not possible, the nest should be moved as near as possible to a site replicating the same environmental conditions as the original site.
- Nests should continue to be monitored for success and records should be kept.

E.3.1 Eastern Imperial Eagle

The Project AoI is situated near the breeding, wintering territories and migration and dispersal (for immatures) areas of the Eastern Imperial Eagle (*Aquila heliaca*) (VU) which is also a PBF value.

- Though no nests were identified during the Project bird baseline, adult birds and immature birds were observed indicating a nearby nest, in addition to suitable environment;
- Possible nesting activity during construction and beyond must be safeguarded;
- This species uses tops of large, spreading trees, however due to anthropogenic land use pressures in the Balkans, this species regularly resorts to using smaller trees or manmade structures that resemble large branching trees such as OHL pylons (Figure E.1).

Nesting checks need to be continued for this species prior to construction activities as follows,

- Within a buffer of 2 km buffer to the project component as defined in the ESIA for birds;
- A mix of Vantage Point scans and transects can be implemented;
- Nesting locations typically favour within 2 km of foraging habitat (agricultural fields, grassland and steppe) but can be located further depending on nesting tree availability;
- Hedgerows amid fields or lone trees amid fields might be used if a suitable tree is located.
- Checks should be performed for suitable nesting tree locations which include any *Quercus, Salix, Pinus, Fraxinus, Ulmus, Populus* trees.
- Additionally, any existing OHL pylons should be checked for nesting.
- Checks are done first in February before the tree's leaf out and nests are visible, as the nests stay well-hidden after leaf out.
- If nests are located, a second check will be performed in April to confirm species and active status of the nest.

If any nesting trees are located, disturbing the nest should be avoided and the nesting tree will be protected from felling, and a buffer of at least 50m should be established. Disturbance from nearby construction activities can result in abandoned nest or failed clutch. Construction activities should be scheduled after fledging if possible.

Nest translocation is possible, but highly technical and frequently unsuccessful due to wrong practices. As a last resort, nest translocation can be considered in consultation with a Raptor Expert who must confirm nest has a high chance of success. Records of consultation and translocation should be kept, and the nest should be monitored for success.

Figure E.1: Representative Eastern Imperial Eagle nest in Quercus (oak) bordering grassland (top) and on high voltage transmission line pylons (bottom) from Thrace.[8]

E.4 Installation of Bird Diverters in Construction Phase to Manage Operation Phase OHL Collision Risk

E.4.1 Target species and flight behaviour

The risk is not even between different species or taxonomic groups, and it is generally reported higher for,

- species with higher wing loading and consequent low manoeuvrability,
- birds that exhibit flock flight,
- species with crepuscular or nocturnal activity,
- birds that undertake display flights,
- sometimes immature birds while they are still fine-tuning their flight control.

Raptor species, especially Eastern Imperial Eagle, will be attracted to the pylons as high value perch and nest opportunities, increasing their risky activity levels at the OHL post-construction.

Due to NNL/NG requirements, the design considerations should prioritise PBF species and specifically those which are known to be more vulnerable to high voltage configuration collisions. These target species are shown on Table E.3.

Table E.3: Target PBF bird species considered for bird diverter selection

Scientific name	Common Name	IUCN Status	Movement	Target
Alectoris graeca	Rock Partridge	NT		Yes, secondary
Aquila heliaca	Eastern Imperial Eagle	VU	Full Migrant	Yes, primary
Burhinus oedicnemus	Eurasian Thick-Knee	LC		Yes, secondary
Buteo rufinus	Long-Legged Buzzard	LC	Full Migrant	Yes, primary
Caprimulgus europaeus	Nightjar	LC	Full Migrant	No, small-bodied, display flight typically not as high
Circaetus gallicus	Short-Toed Snake Eagle	LC	Full Migrant	Yes, primary
Circus aeruginosus	Western Marsh Harrier	LC	Full Migrant	Yes, primary
Circus cyaneus	Hen Harrier	LC	Full Migrant	Yes, primary
Circus pygargus	Montagu's Harrier	LC	Full Migrant	Yes, primary
Falco naumanni	Lesser Kestrel	LC	Full Migrant	Yes, primary
Falco peregrinus	Peregrine	LC		Yes, primary
Falco subbuteo	Hobby	LC	Full Migrant	Yes, primary
Hieraaetus pennatus	Booted Eagle	LC	Full Migrant	Yes, primary
Otus scops	Scops Owl	LC	Full Migrant	Yes, secondary
Pernis apivorus	European Honey Buzzard	LC	Full Migrant	Yes, primary

E.4.2 OHL bird collision risk

Avian mortality due collisions occurs when birds fail to perceive overhead wires as obstructions, hitting the cables at high flight speeds and sustaining traumatic injuries. Within a 400 kV system, the risk is highly concentrated on the uppermost shield wires, the earth wires or Optical Ground

[8] Yeltekin, O Ö. (2021). Trakya'da üreyen ve kişlayan şah kartal (aquila heliaca) üzerine araştirmalar. Trakya Üniversitesi.

Wires (OPGW), which are thinner and less visible than the bundled phase conductors, whereby a bird detects the large-diameter energised conductors at the last moment and manoeuvres upward, only to strike the shield wire positioned directly above.

E.4.3 Diverter type selection

There are a range of bird diverter types that are available which include static solutions (spirals), dynamic solutions (flappers), balls and other marker types like tapes, flags, cross-bands, reflectors. Solutions are project specific and are balanced against criteria such as initial cost, collision prevention efficiency for target species, weight, ease of installation and maintenance, and durability.

- Dynamic diverters are considered the most suitable for the Project based on high visibility, design suitability for HV, and significantly higher efficiency in collision prevention for target species documented in Southern Europe.
- Dynamic diverters incorporate movement to catch the bird's attention. The FireFly and SAPREM rotating diverters are prominent examples.
- **FireFly Ultra** has 360° spinning and swinging motion, uses reflective 3M stickers, phosphorescent glow-in-the-dark centres for increased visibility, and as a dynamic component can achieve up to 70% reduction in mortality on 400 kV lines compared to the 40% achieved by static components (yellow/orange spirals), which is the lower cost option. This product is therefore considered the most suitable for the Project to achieve NNL objectives for target PBF species by significantly reducing collision mortality.
- Solely based on design targeting HV or UHV, SpanGuard Bird Diverter is expressed by the manufacturer to have been designed to withstand the corona effects of lines up to 500 kV, and product was reportedly tested in a HV lab. This might be a higher cost option, but in turn might save cost over the long term due to lower maintenance needs.

Finally, The **Macedonian Ecological Society (MES)** is currently leading a major conservation initiative, the "EP for Birds LIFE" project (July 2025 – July 2030). This project aims to insulate pylons and install bird diverters specifically to protect the Eastern Imperial Eagle and Egyptian vulture in North Macedonia, Bulgaria and Türkiye. Partners include the regional grid operator EVN Macedonia and the Bulgarian Society for the Protection of Birds. MES could be consulted as a stakeholder during the process to foster coordination in implementation, knowledge and resources.

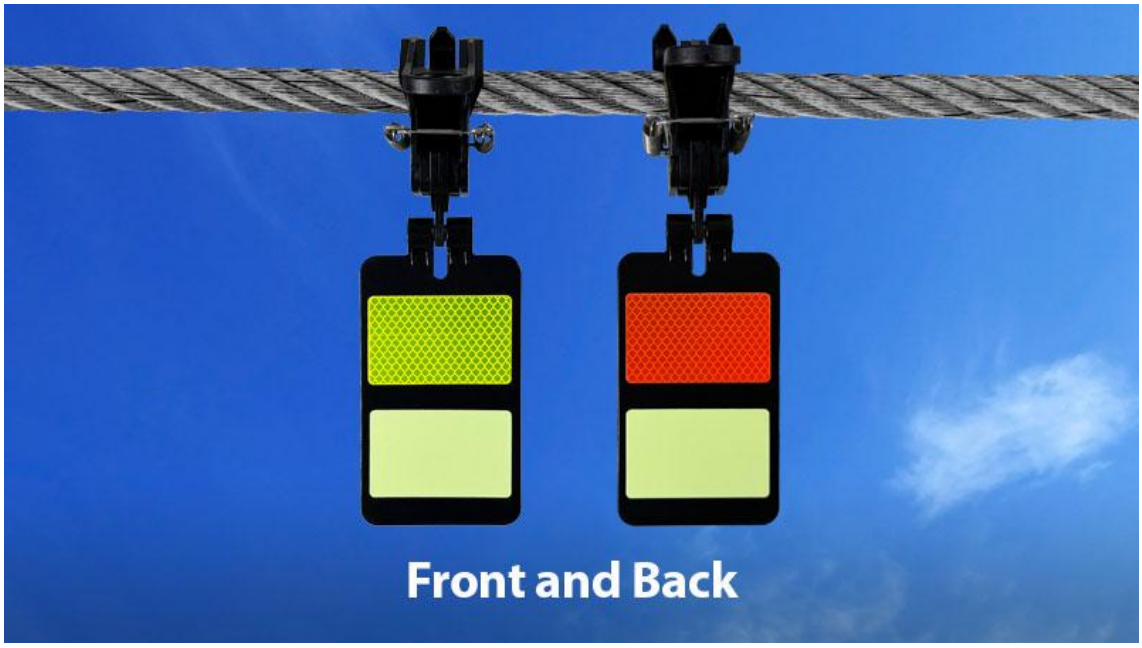


Figure E.2: Firefly Ultra as shown by the manufacturer.

E.4.4 Spacing and placement

In general, throughout the OHL, segments are present where habitat overlaps and interfaces are suitable for the target species, or the topography (ridges) factors in to compound the risk, where perpendicular placement of components, such as the Project OHL's configuration, is considered to increase risks. Bird baseline does not identify any segments as lower risk.

- Using **FireFly Ultra,** the entire span (pylons 1-13) of the uppermost wire or two wires of the OL will be covered by bird diverters.
- The recommended spacing is between 10-15m apart on a single line for the earth wire.
- Implementation (yellow dashed lines) from tower to tower is shown on Figure E.3.
- Based on flight lines, connection lines to existing NW-SE aligned OL segment (pylons 61-65) is less likely to be problematic and not needed to be covered by diverter mitigitation.

Or, placement can be alternated between the top two wires, but placement on a single wire might be simpler from a practical implementation and maintenance stand-point, and is still effective.

Based on the results of ongoing post-construction fatality monitoring, additional bird diverters may be necessary if phase conductor visibility is identified as an issue but is not seen necessary at this point.

- On Figure E.3, black lines show phase conductor lines which can be marked to reduce mortality if any segments of the OL are identified as needing additional mitigation during post-construction fatality monitoring.
- On phase conductors staggered placement is practiced which results in a visual net, and an effective spacing of 5-7.5m apart can be accomplished with staggering.

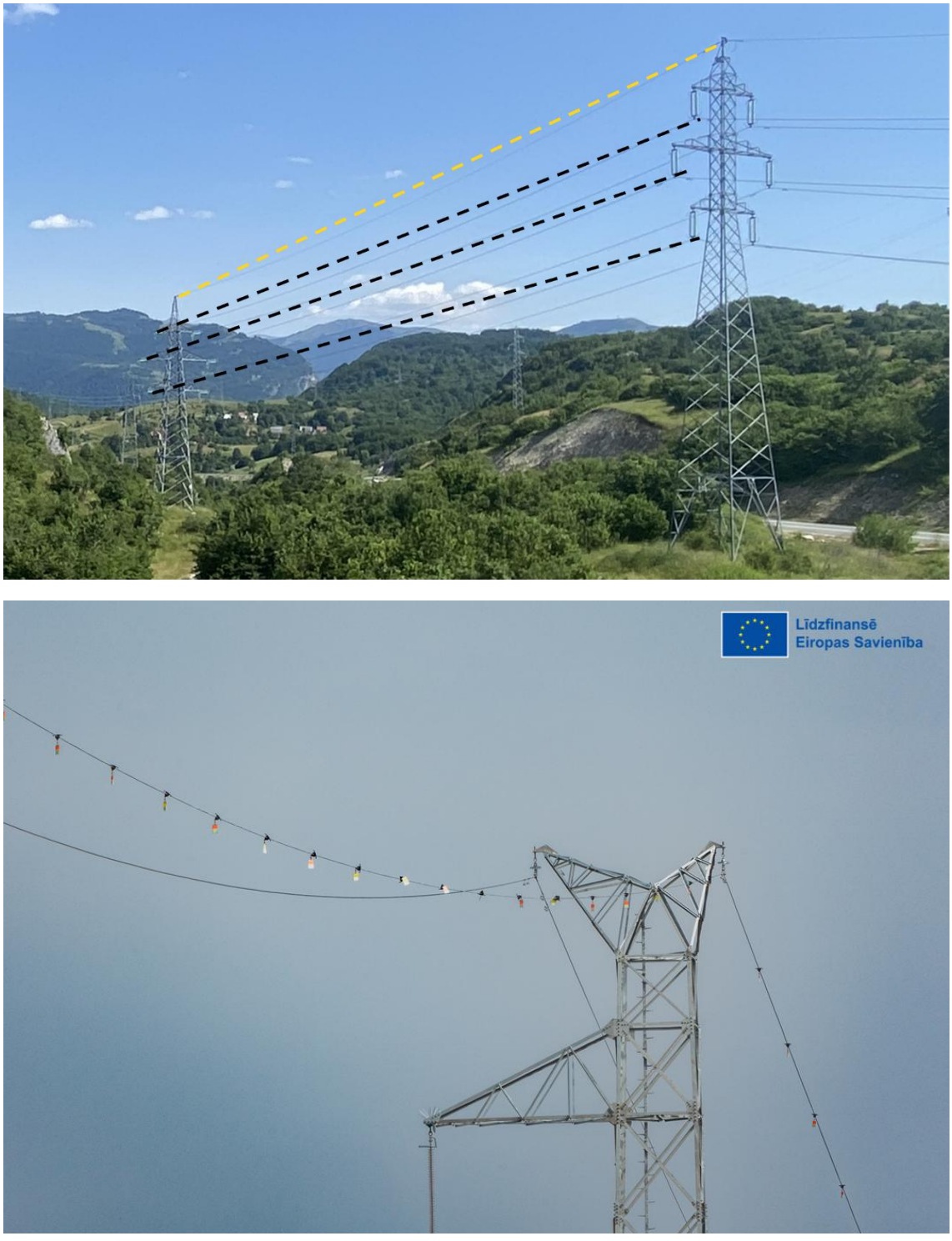


Figure E.3: Example of an OHL provided by Project Proponent with Firefly placement in yellow (top). Installed dynamic diverters on a single 330 kV line (bottom).

E.4.5 Installation requirements and quality control

Installation is recommended prior to energising the line, as it is significantly more costly to de-energise and/or difficult to install on energised line. Installation can be accomplished with bucket truck or drone, selection depending on terrain.

- FireFly Ultra weighs 200 grams and can be installed on live lines up to 115 kV by hand, hot stick, or drone. It is also safe to use on OPGW lines.
- Manufacturer should be contacted directly for detailed product information, installation and testing specifications. Alternatively, installation services may be contracted.

Diverter should remain mobile in winter, and the glow-in-the-dark properties should sustain their effectiveness after years of long-term Ultraviolet light exposure. The vibrant colour should not fade. Markers can break due to a variety of factors such as sustained high wind.

Marker failure or loss should be checked annually at minimum along the span of the OL. Failed or missing markers, if any, need to be replaced annually at minimum.

Figure E.4: Drone (top) or self-movement device (bottom) installation of Firefly[9]**.**

[9] Raptor Protection of Slovakia (2021). Electrocutions & Collisions of Birds in EU Countries: The Negative Impact & Best Practices for Mitigation.

E.5 Managing Construction Phase Bat Risks

Habitat manipulation should be implemented during winter months to disincentivise bat activity before they their active flight period (April), generally keeping activity away from construction areas thereby reducing impact to their daily activities. The approach is detailed in Appendix C.

- Tree felling and vegetation clearance should ideally occur during late autumn or early spring. This avoids the breeding season (summer), when pups are flightless, and the hibernation season (winter), when bats cannot easily escape disturbance.
- Vegetation clearance pre-checks should be carried out to check trees for roosting or hibernating bats. Records should be kept of pre-clearance bat checks.
- Any trees planned to be felled which have suitable cavities should be checked by a competent person and if bats are absent, the cavity can be filled with expanding foam to prevent bat entry.
- Any abandoned buildings and sheds planned for demolition should be checked for bats. Used structures should be fenced off to prevent disturbance if possible. Demolition is not safe to proceed if bats are hibernating or if flightless pups are present. (Note no demolition of any structures is required or planned)
- It is possible to find previously undiscovered caves and crevices as construction proceeds, especially in hilly and mountainous areas. All personnel including contractors and subcontractors need to be aware that if an unknown cave or crevice is discovered, excavations should be stopped. Noise and vibration impact from excavations, blasting or pile driving is not safe for hibernation or maternity roosts. (Note no blasting is planned or required at this stage).
- Lighting during bat active period (April to end of autumn) will be kept to a minimum to avoid attracting insects, to be directed downward when possible. Warm LEDs should be preferred. Automated lighting should be preferred where appropriate.

E.6 Construction Phase Monitoring

The ECoW will check active and upcoming construction areas to ensure no harm to sensitive bird and bats. Weekly site walkovers will be conducted to identify changing conditions due to environmental parameters and construction activity.

For birds, Eastern Imperial Eagle will be continued to be monitored for nesting and breeding activity, which was detailed in E.3.1.

E.6.1 Bats

Four meteorological masts are present which will be used for automated static surveys at height. This requires installing detectors on the mast. High flying species (e.g. *Pipistrellus, Nyctalus, Miniopterus*) were recorded at ground static surveys which support the approach to shift surveys to at height surveys.

- At height surveys can supplement the ground static survey data for increased understanding of high- flyers and necessity for any curtailment measures.
- Methodology will follow NatureScot (2021) guidelines (Bats and onshore wind turbines - survey, assessment and mitigation) for at height monitoring.
- At each mast, one bat detector will be placed at hub height and one other at the lowest blade tip height.
- Equipment will be weatherproof, detectors will be supplied with continuous power (e.g. solar panels and batteries), and data stream will either be connected to Cloud solutions or

regularly backed up manually (requires personnel to physically swap out SD cards from detectors every 1-2 months depending on device specs and recording settings).

- All data will be processed via auto-identification (e.g. Kaleidoscope Pro) and a randomized subset consisting of 5% of all recordings each month will be analysed and verified as manual identification by a qualified Bat Expert, who will also review recordings of sensitive species.
- should be perused for technical details and recommendations for suitable equipment, mitigation of atmospheric challenges and obtaining high quality data.

E.7 Training and Awareness

All personnel on-site including contractors and subcontractors will be covered by induction training which covers the bird and bat diversity of the project area, PBF values, construction impacts and mitigation measures. Records of trainings should be kept (materials, presenter, attendants for each training).

Areas frequented by the personnel such as the dining area, resting and recreation areas, or any camp areas should be covered by informational posters that include practical information. The posters should be updated in line with arising project information and updated measures, if any.

Contact information of ECoW and Biodiversity Specialist should be distributed. ECoW and Biodiversity Specialist should have contact information for other relevant experts such as Bird /Raptor Expert, Bat Expert, wildlife veterinarians and licenced rehabilitators.

A ban on hunting, persecution (such as poisoning of stigmatised species like raptors), and collection of wildlife, and a ban on keeping free-roaming domestic cats and dogs will be enacted and enforced.

An incentive-punishment system will be in effect for compliance with Project biodiversity standards, plans and procedures and will be extended to contractors and subcontractors.

E.8 Interface with Bird and Bat Operational Management Plan

While this section defines construction phase management and monitoring requirements for Stip Phase 1 and serves as the first iteration of an adaptable document both as a precursor for Phase 2 and 3 construction management, but also for Operation Management.

Data and knowledge obtained during Stip 1 construction, lessons learned, know-how developed, and project specific approaches should be leveraged to evolve or enrich the management and monitoring recommendations in this plan for later plans.

The major points of contact between this construction phase plan and future plans, including the operation phase are (1) the hand-over of bird diverter installation, placement and spacing, ongoing maintenance and efficacy monitoring, (2) continuation of raptor nest checks, specifically for Eastern Imperial Eagle and other previously unrecorded threatened or protected species, (3) continuous appraisal of bird and bat activity, appraisal of risk and adjustment of mitigation in a staged approach.